

表 1 モード組成一覧表 (1)  
Table 1 Mode analysis data (1)

| rock body       | Shodoshima granite |            |              |          |               |          | Yoshino granite |          |              |             |                |          |
|-----------------|--------------------|------------|--------------|----------|---------------|----------|-----------------|----------|--------------|-------------|----------------|----------|
|                 | Fujisaki-type      |            | Atchama-type |          | Nadayama-type |          | Fukuda-type     |          | Yoshino-type |             | Ushigaura-type |          |
| rock type       | Granite            | Granite    | Granite      | Granite  | Granite       | Granite  | Granite         | Granite  | Granite      | Granite     | Granite        | Granite  |
| sample No.      | 9608260101         | 9611170104 | 98112906     | 98113001 | 98113002-01   | 98112905 | 98112908        | 98120403 | 98120504     | 96111303-01 | 98120301       | 98120502 |
| Quartz          | 38.0               | 39.6       | 40.1         | 26.9     | 27.2          | 25.2     | 27.8            | 23.1     | 23.7         | 27.1        | 38.5           | 36.1     |
| Alkali-feldspar | 26.4               | 26.7       | 24.6         | 25.9     | 28.6          | 27.6     | 29.1            | 20.4     | 30.2         | 35.4        | 31.5           | 30.4     |
| Plagioclase     | 32.2               | 30.1       | 32.1         | 40.6     | 39.1          | 37.4     | 33.7            | 50.3     | 41.1         | 31.9        | 23.9           | 30.1     |
| Biotite         | 2.7                | 2.7        | 2.5          | 6.1      | 4.4           | 8.5      | 7.8             | 3.6      | 3.2          | 4.1         | 2.5            | 2.1      |
| Hornblende      | 0.0                | 0.0        | 0.0          | 0.0      | 0.1           | 0.1      | 0.4             | 2.1      | 1.2          | 0.0         | 0.0            | 0.0      |
| Cpx             | 0.0                | 0.0        | 0.0          | 0.0      | 0.0           | 0.0      | 0.0             | 0.0      | 0.0          | 0.0         | 0.0            | 0.0      |
| Opx             | 0.0                | 0.0        | 0.0          | 0.0      | 0.0           | 0.0      | 0.0             | 0.0      | 0.0          | 0.0         | 0.0            | 0.0      |
| Apatite         | 0.0                | 0.0        | 0.0          | 0.1      | 0.2           | 0.3      | 0.2             | 0.2      | 0.2          | 0.0         | 0.0            | 0.0      |
| Zircon          | 0.2                | 0.0        | 0.0          | 0.1      | 0.1           | 0.2      | 0.2             | 0.0      | 0.0          | 0.0         | 0.0            | 0.5      |
| Sphene          | 0.1                | 0.0        | 0.0          | 0.0      | 0.0           | 0.0      | 0.0             | 0.0      | 0.1          | 1.5         | 1.2            | 0.8      |
| Allanite        | 0.1                | 0.8        | 0.5          | 0.1      | 0.2           | 0.1      | 0.2             | 0.1      | 0.1          | 0.0         | 1.3            | 0.0      |
| Opaque          | 0.3                | 0.1        | 0.2          | 0.2      | 0.1           | 0.2      | 0.3             | 0.2      | 0.2          | 0.0         | 1.1            | 0.0      |
| total           | 100.0              | 100.0      | 100.0        | 100.0    | 100.0         | 100.0    | 100.0           | 100.0    | 100.0        | 100.0       | 100.0          | 100.0    |

| rock body       | Nanpudai granite |          | rock body       | Tanoura Igneous Complex (TIC) |          |            |          |              |              |            |            |          |          |
|-----------------|------------------|----------|-----------------|-------------------------------|----------|------------|----------|--------------|--------------|------------|------------|----------|----------|
|                 | Nanpudai-type    |          |                 | rock type                     | Granite  | Granite    | Granite  | Granodiorite | Granodiorite | Tonalite   | Tonalite   | Tonalite | Tonalite |
| sample No.      | 98120506         | 97052904 | sample No.      |                               | 970528Gr | 98061701Gr | 98061702 | 9611220102   | 9611220302   | 9611210301 | 9611220103 | 970528To | 98061703 |
| Quartz          | 32.4             | 30.1     | Quartz          | 32.4                          | 35.7     | 31.0       | 27.1     | 25.2         | 22.5         | 28.4       | 26.3       | 20.1     |          |
| Alkali-feldspar | 17.2             | 20.8     | Alkali-feldspar | 34.4                          | 22.5     | 23.5       | 34.8     | 31.4         | 0.1          | 0.5        | 0.5        | 0.4      |          |
| Plagioclase     | 41.6             | 40.5     | Plagioclase     | 28.2                          | 28.2     | 36.4       | 30.6     | 36.1         | 54.8         | 43.5       | 42.1       | 56.4     |          |
| Biotite         | 8.2              | 6.8      | Biotite         | 4.5                           | 12.9     | 8.6        | 6.9      | 6.9          | 10.2         | 13.6       | 14.2       | 12.3     |          |
| Hornblende      | 0.1              | 1.0      | Hornblende      | 0.0                           | 0.0      | 0.0        | 0.0      | 0.1          | 9.4          | 10.9       | 13.2       | 8.3      |          |
| Cpx             | 0.0              | 0.0      | Cpx             | 0.0                           | 0.0      | 0.0        | 0.0      | 0.0          | 0.0          | 0.0        | 0.0        | 0.0      |          |
| Opx             | 0.0              | 0.0      | Opx             | 0.0                           | 0.0      | 0.0        | 0.0      | 0.0          | 0.0          | 0.0        | 0.0        | 0.0      |          |
| Apatite         | 0.2              | 0.5      | Apatite         | 0.0                           | 0.3      | 0.0        | 0.1      | 0.0          | 0.1          | 0.3        | 0.3        | 0.3      |          |
| Zircon          | 0.1              | 0.1      | Zircon          | 0.2                           | 0.2      | 0.3        | 0.5      | 0.3          | 1.6          | 1.5        | 2.1        | 1.4      |          |
| Sphene          | 0.0              | 0.0      | Sphene          | 0.0                           | 0.0      | 0.0        | 0.0      | 0.0          | 0.0          | 0.0        | 0.0        | 0.0      |          |
| Allanite        | 0.0              | 0.0      | Allanite        | 0.1                           | 0.1      | 0.1        | 0.0      | 0.0          | 0.0          | 0.0        | 0.0        | 0.0      |          |
| Opaque          | 0.2              | 0.2      | Opaque          | 0.2                           | 0.1      | 0.1        | 0.0      | 0.0          | 1.3          | 1.3        | 1.3        | 0.8      |          |
| total           | 100.0            | 100.00   | total           | 100.0                         | 100.0    | 100.0      | 100.0    | 100.0        | 100.0        | 100.0      | 100.0      | 100.0    |          |

| rock body       | Tanoura Igneous Complex (TIC) |          |           |            |          |             |               |            |            |            |            |         |
|-----------------|-------------------------------|----------|-----------|------------|----------|-------------|---------------|------------|------------|------------|------------|---------|
|                 | Tonalite                      | Tonalite | Tonalite  | Diorite    | Diorite  | Diorite     | Diorite       | Diorite    | Diorite    | Diorite    | Diorite    | Diorite |
| sample No.      | 960610III-X                   | 960615HG | 960610III | 9611200101 | 970528Qd | 96060602-IV | 96060501 I -3 | 96061201 V | 9609010102 | 9609010101 | 9611220104 |         |
| Quartz          | 24.2                          | 32.1     | 26.7      | 6.8        | 6.2      | 0.9         | 6.5           | 5.0        | 1.6        | 1.0        | 0.8        |         |
| Alkali-feldspar | 0.3                           | 0.1      | 0.2       | 0.0        | 0.0      | 0.0         | 0.0           | 0.0        | 0.0        | 0.0        | 0.0        |         |
| Plagioclase     | 50.7                          | 44.3     | 45.5      | 43.8       | 42.3     | 43.4        | 44.0          | 51.4       | 49.0       | 53.8       | 58.2       |         |
| Biotite         | 11.8                          | 14.2     | 15.0      | 12.4       | 15.3     | 11.0        | 7.8           | 7.4        | 2.6        | 0.0        | 20.6       |         |
| Hornblende      | 10.0                          | 7.6      | 9.6       | 35.2       | 34.2     | 36.3        | 37.4          | 31.5       | 44.4       | 39.8       | 17.8       |         |
| Cpx             | 0.2                           | 0.0      | 0.0       | 0.0        | 0.0      | 0.0         | 0.0           | 0.0        | 0.0        | 0.0        | 0.0        |         |
| Opx             | 0.0                           | 0.0      | 0.0       | 0.0        | 0.0      | 0.0         | 0.0           | 0.0        | 0.0        | 0.0        | 0.0        |         |
| Apatite         | 0.0                           | 0.0      | 0.1       | 0.0        | 0.4      | 1.6         | 1.7           | 0.9        | 0.0        | 0.0        | 0.2        |         |
| Zircon          | 1.6                           | 1.5      | 1.7       | 0.6        | 0.2      | 1.2         | 1.0           | 0.0        | 0.0        | 1.6        | 0.6        |         |
| Sphene          | 0.0                           | 0.1      | 0.0       | 0.0        | 0.0      | 0.0         | 0.0           | 0.0        | 0.0        | 0.0        | 1.0        |         |
| Allanite        | 0.1                           | 0.1      | 0.0       | 0.0        | 0.0      | 0.0         | 0.0           | 0.0        | 0.0        | 0.0        | 0.0        |         |
| Opaque          | 1.1                           | 0.0      | 1.2       | 1.2        | 1.4      | 5.4         | 1.4           | 3.6        | 2.4        | 3.8        | 0.8        |         |
| total           | 100.0                         | 100.0    | 100.0     | 100.0      | 100.0    | 100.0       | 100.0         | 100.0      | 100.0      | 100.0      | 100.0      |         |

| rock body       | Tanoura Igneous Complex (TIC) |            |                                 |                                 |                   |             |            |            |             |                         |                         |                         |
|-----------------|-------------------------------|------------|---------------------------------|---------------------------------|-------------------|-------------|------------|------------|-------------|-------------------------|-------------------------|-------------------------|
|                 | Gabbro                        | Gabbro     | Gabbro                          | Gabbro                          | MME               | MME         | MME        | MME        | MME         | xenoporphyriti<br>c MME | xenoporphyriti<br>c MME | xenoporphyriti<br>c MME |
| sample No.      | 9608300202                    | 9608300203 | 96090303<br>-03-1<br>(98061201) | 96090303<br>-03-2<br>(98061202) | 96060402-<br>1MME | 96090304-05 | 9611210302 | 9611220107 | 97052701-02 | 9611210102              | 9611210303              | 96060602                |
| Quartz          | 1.1                           | 2.3        | 2.1                             | 0.0                             | 2.4               | 0.0         | 3.6        | 0.0        | 0.0         | 17.8                    | 2.0                     | 0.9                     |
| Alkali-feldspar | 0                             | 0.0        | 0.0                             | 0.0                             | 0.0               | 0.0         | 0.0        | 0.0        | 0.0         | 0.6                     | 0.0                     | 0.0                     |
| Plagioclase     | 47.6                          | 46.3       | 48.7                            | 52.7                            | 31.4              | 40.8        | 42.8       | 46.8       | 44.3        | 52.4                    | 52.2                    | 43.1                    |
| Biotite         | 4.4                           | 6.4        | 4.4                             | 4.2                             | 16.4              | 1.3         | 10.0       | 2.4        | 0.0         | 11.8                    | 15.4                    | 11.0                    |
| Hornblende      | 29.7                          | 30.9       | 28.6                            | 30.3                            | 46.2              | 47.3        | 42.0       | 47.3       | 54.0        | 13.6                    | 24.2                    | 36.8                    |
| Cpx             | 2.8                           | 3.5        | 3.0                             | 1.2                             | 0.0               | 5.4         | 0.0        | 0.0        | 0.0         | 0.0                     | 0.0                     | 0.0                     |
| Opx             | 13.5                          | 10.2       | 12.4                            | 11.0                            | 0.0               | 2.3         | 0.0        | 0.0        | 0.0         | 0.0                     | 0.0                     | 0.0                     |
| Apatite         | 0.0                           | 0.0        | 0.0                             | 0.0                             | 0.4               | 1.0         | 0.6        | 0.0        | 0.3         | 0.2                     | 1.8                     | 1.6                     |
| Zircon          | 0.0                           | 0.0        | 0.0                             | 0.0                             | 1.4               | 0.0         | 0.4        | 1.6        | 0.3         | 2.6                     | 1.2                     | 1.2                     |
| Sphene          | 0.0                           | 0.0        | 0.0                             | 0.0                             | 0.2               | 0.0         | 0.0        | 0.0        | 0.0         | 0.0                     | 0.0                     | 0.0                     |
| Allanite        | 0.0                           | 0.0        | 0.0                             | 0.0                             | 0.4               | 0.0         | 0.0        | 0.0        | 0.0         | 0.0                     | 0.0                     | 0.0                     |
| Opaque          | 0.9                           | 0.4        | 0.8                             | 0.6                             | 1.2               | 1.9         | 0.6        | 1.9        | 1.1         | 1.0                     | 3.2                     | 5.4                     |
| total           | 100.00                        | 100.0      | 100.0                           | 100.0                           | 100.0             | 100.0       | 100.0      | 100.0      | 100.0       | 100.0                   | 100.0                   | 100.0                   |

表1 モード組成一覧表(2)  
Table 1 Mode analysis data (2)

| rock body       | Tanoura Igneous Complex(TIC) |                    |                    |                    |               |               |                |               |                      |                          |                      |                |
|-----------------|------------------------------|--------------------|--------------------|--------------------|---------------|---------------|----------------|---------------|----------------------|--------------------------|----------------------|----------------|
| rock type       | xenoporphyrific MME          | MME (microdiorite) | MME (microdiorite) | MME (microdiorite) | Enclaves dike | Enclaves dike | Enclaves dike  | Enclaves dike | Composite dike       | Composite dike           | Composite dike       | Disrupted dike |
| sample No.      | 9611200104                   | 960611-2           | 9611200103         | 9611220105         | 96061201 MD-7 | 96061201 MD-9 | 96061204 MD-15 | HE-MD-3       | HE-MD-8 (mafic part) | HE-MD-8-9F (felsic part) | HE-MD-9 (mafic part) | 96061102 Mafic |
| Quartz          | 6.6                          | 1.2                | 3.0                | 10.8               | 0.8           | 0.0           | 0.0            | 0.0           | 0.0                  | 46.3                     | 0.0                  | 1.3            |
| Alkali-feldspar | 0.0                          | 0.0                | 0.0                | 0.0                | 0.0           | 0.0           | 0.0            | 0.0           | 0.0                  | 20.5                     | 0.0                  | 0.0            |
| Plagioclase     | 51.4                         | 44.4               | 41.4               | 46.6               | 36.8          | 34.0          | 45.3           | 54.2          | 45.2                 | 29.7                     | 47.6                 | 48.7           |
| Biotite         | 8.8                          | 7.6                | 12.2               | 19.8               | 12.5          | 5.4           | 2.4            | 2.3           | 4.2                  | 3.5                      | 6.0                  | 10.0           |
| Hornblende      | 29.2                         | 46.2               | 41.4               | 22.4               | 48.3          | 58.0          | 48.6           | 41.3          | 48.0                 | 0.0                      | 43.5                 | 38.7           |
| Cpx             | 0.0                          | 0.0                | 0.0                | 0.0                | 0.0           | 0.0           | 0.0            | 0.0           | 0.0                  | 0.0                      | 0.0                  | 0.0            |
| Opx             | 0.0                          | 0.0                | 0.0                | 0.0                | 0.0           | 0.0           | 0.0            | 0.0           | 0.0                  | 0.0                      | 0.0                  | 0.0            |
| Apatite         | 0.4                          | 0.0                | 0.0                | 0.2                | 0.0           | 0.0           | 0.0            | 0.0           | 0.0                  | 0.0                      | 1.1                  | 0.0            |
| Zircon          | 1.0                          | 0.0                | 1.2                | 0.0                | 0.0           | 0.5           | 1.4            | 0.8           | 0.5                  | 0.0                      | 0.5                  | 0.6            |
| Sphene          | 0.4                          | 0.0                | 0.0                | 0.0                | 0.0           | 0.0           | 0.0            | 0.0           | 0.0                  | 0.0                      | 0.0                  | 0.0            |
| Allanite        | 0.0                          | 0.0                | 0.0                | 0.0                | 0.0           | 0.0           | 0.0            | 0.0           | 0.0                  | 0.0                      | 0.0                  | 0.0            |
| Opaque          | 2.2                          | 0.6                | 0.8                | 0.2                | 1.6           | 2.1           | 2.3            | 1.4           | 2.1                  | 0.0                      | 1.3                  | 0.6            |
| total           | 100.0                        | 100.0              | 100.0              | 100.0              | 100.0         | 100.0         | 100.0          | 100.0         | 100.0                | 100.0                    | 100.0                | 100.0          |

| rock body       | Tanoura Igneous Complex(TIC) |                |                |                  |            |                |           |
|-----------------|------------------------------|----------------|----------------|------------------|------------|----------------|-----------|
| rock type       | Disrupted dike               | Disrupted dike | Disrupted dike | Back-veined dike | late dike  | late dike      | late dike |
| sample No.      | 96061201 MD-8                | 9611210201     | 9611210305     | 96061001 MD-1    | 960611MD-4 | 96061202 MD-10 | 97052901D |
| Quartz          | 11.60                        | 0.00           | 0.00           | 0.00             | 0.60       | 3.50           | 5.60      |
| Alkali-feldspar | 0.00                         | 0.00           | 0.00           | 0.00             | 0.00       | 0.00           | 0.00      |
| Plagioclase     | 44.00                        | 51.00          | 31.60          | 31.50            | 34.80      | 36.20          | 38.80     |
| Biotite         | 0.60                         | 0.00           | 2.60           | 15.40            | 10.60      | 6.00           | 4.50      |
| Hornblende      | 42.20                        | 46.80          | 64.60          | 50.10            | 48.60      | 50.10          | 47.20     |
| Cpx             | 0.00                         | 0.00           | 0.00           | 0.00             | 0.00       | 0.00           | 0.00      |
| Opx             | 0.00                         | 0.00           | 0.00           | 0.00             | 0.00       | 0.00           | 0.00      |
| Apatite         | 0.00                         | 0.00           | 0.00           | 0.50             | 0.50       | 1.00           | 1.20      |
| Zircon          | 0.00                         | 0.00           | 0.60           | 1.30             | 0.00       | 0.60           | 0.60      |
| Sphene          | 0.80                         | 0.00           | 0.00           | 0.00             | 2.90       | 0.00           | 0.00      |
| Allanite        | 0.00                         | 0.00           | 0.00           | 0.00             | 0.00       | 0.00           | 0.00      |
| Opaque          | 0.80                         | 2.20           | 0.60           | 1.20             | 2.00       | 2.60           | 2.10      |
| total           | 100.0                        | 100.0          | 100.0          | 100.0            | 100.0      | 100.0          | 100.0     |

表 2 全岩化学組成一覽表 (1)  
Table 2 Bulk chemical compositions (1)

| rock body                          | Shodoshima granite |            |             |             |          |                 |               |             |             |          |
|------------------------------------|--------------------|------------|-------------|-------------|----------|-----------------|---------------|-------------|-------------|----------|
|                                    | Fujisaki-type      |            |             | Achama-type |          |                 | Nadayama-type |             | Fukuda-type |          |
| rock type                          | Granite            | MME        | MME         | Granite     | Granite  | MME             | Granite       | Granite     | Granite     | Granite  |
| sample No.                         | 9608260101         | 9608260601 | 97052905-02 | 9611170104  | 98112906 | 98112906<br>MME | 98113001      | 98113002-01 | 98112905    | 98112908 |
| SiO <sub>2</sub> (wt%)             | 76.94              | 60.25      | 69.43       | 81.06       | 77.18    | 65.88           | 79.71         | 78.67       | 79.15       | 78.23    |
| TiO <sub>2</sub>                   | 0.13               | 0.98       | 0.39        | 0.06        | 0.11     | 0.66            | 0.02          | 0.02        | 0.03        | 0.04     |
| Al <sub>2</sub> O <sub>3</sub>     | 15.99              | 17.45      | 15.79       | 13.11       | 13.51    | 15.52           | 14.97         | 13.86       | 13.91       | 15.23    |
| Fe <sub>2</sub> O <sub>3</sub>     | 1.48               | 7.19       | 4.15        | 0.86        | 1.49     | 7.22            | 0.59          | 0.70        | 0.65        | 0.63     |
| MnO                                | 0.02               | 0.14       | 0.07        | 0.02        | 0.03     | 0.12            | 0.20          | 0.02        | 0.02        | 0.02     |
| MgO                                | 0.18               | 2.39       | 0.69        | 0.08        | 0.12     | 1.16            | 0.01          | 0.01        | 0.00        | 0.00     |
| CaO                                | 0.93               | 6.60       | 3.10        | 0.40        | 1.00     | 3.15            | 0.38          | 0.45        | 0.42        | 0.44     |
| Na <sub>2</sub> O                  | 2.24               | 3.07       | 4.05        | 1.79        | 3.20     | 3.95            | 1.90          | 2.86        | 2.77        | 2.22     |
| K <sub>2</sub> O                   | 2.05               | 1.76       | 2.23        | 2.62        | 3.33     | 2.13            | 2.41          | 3.40        | 3.05        | 3.20     |
| P <sub>2</sub> O <sub>5</sub>      | 0.04               | 0.19       | 0.11        | 0.01        | 0.02     | 0.20            | 0.01          | 0.01        | 0.00        | 0.00     |
| total                              | 100.00             | 100.02     | 100.01      | 100.01      | 99.99    | 99.99           | 100.20        | 100.00      | 100.00      | 100.01   |
| Ti(in ppm)                         | 779                | 5875       | 2338        | 360         | 659      | 3957            | 120           | 120         | 180         | 240      |
| P(in ppm)                          | 174                | 829        | 480         | 44          | 87       | 872             | 44            | 44          | 0           | 0        |
| K(in ppm)                          | 17017              | 14610      | 18511       | 21749       | 27642    | 17681           | 20005         | 28223       | 25318       | 26563    |
| Ce                                 | 45.2               | 49.9       | 61.4        | 34.4        | 49.5     | 67.7            | 20.8          | 26          | 38.8        | 24.7     |
| Cr                                 | 5.6                | 13.6       | 0.1         | 0.1         | 13.0     | 5.2             | 6.5           | 0.4         | 0.3         | 12.7     |
| Nb                                 | 7.78               | 6.94       | 8.26        | 8.99        | 9.01     | 14.60           | 6.74          | 7.20        | 9.12        | 8.88     |
| Ni                                 | tr                 | tr         | tr          | tr          | tr       | tr              | tr            | tr          | tr          | tr       |
| Pb                                 | 18.3               | 20.5       | 12.4        | 28.4        | 23.7     | 14.3            | 29.0          | 29.2        | 28.2        | 28.4     |
| Rb                                 | 109                | 76.1       | 71.4        | 149         | 137      | 184             | 130           | 153         | 145         | 119      |
| Sr                                 | 155                | 389        | 262         | 61.2        | 114      | 160             | 38.4          | 36.5        | 31.0        | 39.8     |
| Th                                 | 11.2               | 5.3        | 6.8         | 12.7        | 14.8     | 7.6             | 17.0          | 11.1        | 10.8        | 8.9      |
| Y                                  | 24.4               | 19.5       | 23.9        | 29.9        | 26.9     | 28.5            | 23.9          | 26.5        | 30.2        | 23.2     |
| Zr                                 | 118                | 115        | 181         | 70          | 109      | 245             | 57            | 50          | 72          | 53       |
| Ba                                 | 707                | 373        | 541         | 518         | 739      | 332             | 479           | 411         | 474         | 701      |
| Ti/Zr                              | 6.6                | 51.0       | 12.9        | 5.1         | 6.0      | 16.2            | 2.1           | 2.4         | 2.5         | 4.5      |
| Ti/Y                               | 31.9               | 301.3      | 97.8        | 12.0        | 24.5     | 138.8           | 5.0           | 4.5         | 6.0         | 10.3     |
| Zr/Y                               | 4.8                | 5.9        | 7.6         | 2.3         | 4.1      | 8.6             | 2.4           | 1.9         | 2.4         | 2.3      |
| Nb/Y                               | 0.32               | 0.36       | 0.35        | 0.30        | 0.33     | 0.51            | 0.28          | 0.27        | 0.30        | 0.38     |
| Ce/Th                              | 4.0                | 9.5        | 9.1         | 2.7         | 3.3      | 8.9             | 1.2           | 2.3         | 3.6         | 2.8      |
| Rb/Zr                              | 0.93               | 0.66       | 0.39        | 2.13        | 1.25     | 0.75            | 2.31          | 3.06        | 2.03        | 2.23     |
| Zr/Th                              | 10.6               | 22.0       | 26.7        | 5.5         | 7.4      | 32.3            | 3.3           | 4.5         | 6.6         | 6.0      |
| Ce/Pb                              | 2.5                | 2.4        | 5.0         | 1.2         | 2.1      | 4.7             | 0.7           | 0.9         | 1.4         | 0.9      |
| Ce/Nb                              | 5.8                | 7.2        | 7.4         | 3.8         | 5.5      | 4.6             | 3.1           | 3.6         | 4.3         | 2.8      |
| Th/Nb                              | 1.44               | 0.76       | 0.82        | 1.41        | 1.65     | 0.52            | 2.52          | 1.54        | 1.19        | 1.00     |
| Th/Y                               | 0.46               | 0.27       | 0.28        | 0.43        | 0.55     | 0.27            | 0.71          | 0.42        | 0.36        | 0.38     |
| Ba/Ce                              | 15.6               | 7.5        | 8.8         | 15.1        | 14.9     | 4.9             | 23.0          | 15.8        | 12.2        | 28.4     |
| K/Rb                               | 156                | 192        | 259         | 146         | 202      | 96              | 153           | 184         | 174         | 224      |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.92               | 0.57       | 0.55        | 1.46        | 1.04     | 0.54            | 1.27          | 1.19        | 1.10        | 1.44     |
| A/CNK                              | 2.11               | 0.92       | 1.07        | 2.02        | 1.26     | 1.07            | 2.33          | 1.51        | 1.61        | 1.92     |
| FeO*/MgO                           | 7.32               | 2.68       | 5.35        | 9.57        | 11.05    | 5.54            | 52.51         | 62.30       | —           | —        |

| rock body                          | Yoshinogranite |          |                |                |          |          |                | rock body                          | Nanpudai granite |              |
|------------------------------------|----------------|----------|----------------|----------------|----------|----------|----------------|------------------------------------|------------------|--------------|
|                                    | Yoshino-type   |          |                | Ushigaura-type |          |          |                |                                    | Nanpudai-type    |              |
| rock type                          | Granite        | Granite  | Tonalitic rock | Granite        | Granite  | Granite  | Aplititic rock | rock type                          | Granodiorite     | Granodiorite |
| sample No.                         | 98120403       | 98120504 | 97052902-01H   | 96111303-01    | 98120301 | 98120502 | 9705290301     | sample No.                         | 98120506         | 97052904     |
| SiO <sub>2</sub> (wt%)             | 71.31          | 71.57    | 64.46          | 80.65          | 79.14    | 78.33    | 75.16          | SiO <sub>2</sub> (wt%)             | 74.88            | 72.20        |
| TiO <sub>2</sub>                   | 0.24           | 0.26     | 0.79           | 0.05           | 0.05     | 0.11     | 0.20           | TiO <sub>2</sub>                   | 0.25             | 0.30         |
| Al <sub>2</sub> O <sub>3</sub>     | 17.58          | 18.24    | 16.81          | 13.26          | 14.95    | 15.19    | 14.51          | Al <sub>2</sub> O <sub>3</sub>     | 15.49            | 16.21        |
| Fe <sub>2</sub> O <sub>3</sub>     | 2.45           | 2.46     | 5.88           | 0.65           | 0.67     | 1.10     | 1.65           | Fe <sub>2</sub> O <sub>3</sub>     | 1.47             | 2.15         |
| MnO                                | 0.03           | 0.04     | 0.09           | 0.01           | 0.01     | 0.01     | 0.02           | MnO                                | 0.03             | 0.06         |
| MgO                                | 0.44           | 0.46     | 1.38           | 0.02           | 0.01     | 0.06     | 0.19           | MgO                                | 0.43             | 0.66         |
| CaO                                | 3.10           | 2.01     | 4.62           | 0.42           | 0.42     | 1.05     | 1.75           | CaO                                | 1.50             | 2.00         |
| Na <sub>2</sub> O                  | 3.09           | 2.59     | 3.93           | 2.27           | 1.96     | 1.73     | 3.48           | Na <sub>2</sub> O                  | 2.17             | 2.78         |
| K <sub>2</sub> O                   | 1.71           | 2.30     | 1.82           | 2.67           | 2.78     | 2.40     | 3.01           | K <sub>2</sub> O                   | 3.68             | 3.54         |
| P <sub>2</sub> O <sub>5</sub>      | 0.06           | 0.06     | 0.21           | 0.00           | 0.00     | 0.01     | 0.04           | P <sub>2</sub> O <sub>5</sub>      | 0.10             | 0.11         |
| total                              | 100.01         | 99.99    | 99.99          | 100.00         | 99.99    | 99.99    | 100.01         | total                              | 100.00           | 100.01       |
| Ti(in ppm)                         | 1439           | 1559     | 4736           | 300            | 300      | 659      | 1199           | Ti(in ppm)                         | 1499             | 1799         |
| P(in ppm)                          | 262            | 262      | 916            | 0              | 0        | 44       | 174            | P(in ppm)                          | 436              | 480          |
| K(in ppm)                          | 14195          | 19092    | 15108          | 22164          | 23077    | 19922    | 24986          | K(in ppm)                          | 30548            | 29386        |
| Ce                                 | 72.7           | 77.4     | 72.7           | 46.2           | 42.3     | 85.7     | 56.8           | Ce                                 | 41.7             | 44.2         |
| Cr                                 | 0.4            | 13.1     | 5.3            | 4.38           | 4.3      | 3.0      | 1.0            | Cr                                 | 3.8              | 7.8          |
| Nb                                 | 6.01           | 10.87    | 10.24          | 8.88           | 9.43     | 8.16     | 6.68           | Nb                                 | 8.12             | 9.53         |
| Ni                                 | tr             | tr       | tr             | tr             | tr       | tr       | tr             | Ni                                 | tr               | tr           |
| Pb                                 | 15.7           | 20.2     | 14.1           | 29.7           | 32.1     | 19.7     | 20.3           | Pb                                 | 31.9             | 30.3         |
| Rb                                 | 54.5           | 119      | 61.7           | 204            | 226      | 113      | 83.7           | Rb                                 | 176              | 192          |
| Sr                                 | 323            | 193      | 362            | 30.2           | 27.5     | 159      | 216            | Sr                                 | 200              | 207          |
| Th                                 | 10.9           | 12.7     | 10.2           | 25.1           | 24.4     | 16.3     | 12.7           | Th                                 | 13.3             | 11.4         |
| Y                                  | 16.4           | 29.0     | 20.2           | 33.5           | 36.6     | 19.7     | 17.5           | Y                                  | 22.1             | 23.3         |
| Zr                                 | 183            | 185      | 238            | 93             | 81       | 152      | 132            | Zr                                 | 126.8            | 106.0        |
| Ba                                 | 758            | 711      | 633            | 216            | 249      | 1451     | 926            | Ba                                 | 595              | 512          |
| Ti/Zr                              | 7.8            | 8.4      | 19.9           | 3.2            | 3.7      | 4.3      | 9.1            | Ti/Zr                              | 11.8             | 17.0         |
| Ti/Y                               | 87.7           | 53.7     | 234.5          | 8.9            | 8.2      | 33.5     | 68.5           | Ti/Y                               | 67.8             | 77.2         |
| Zr/Y                               | 11.2           | 6.4      | 11.8           | 2.8            | 2.2      | 7.7      | 7.6            | Zr/Y                               | 5.74             | 4.55         |
| Nb/Y                               | 0.37           | 0.37     | 0.51           | 0.27           | 0.26     | 0.41     | 0.38           | Nb/Y                               | 0.37             | 0.41         |
| Ce/Th                              | 6.7            | 6.1      | 7.1            | 1.8            | 1.7      | 5.2      | 4.5            | Ce/Th                              | 3.1              | 3.9          |
| Rb/Zr                              | 0.30           | 0.64     | 0.26           | 2.19           | 2.79     | 0.74     | 0.63           | Rb/Zr                              | 1.39             | 1.81         |
| Zr/Th                              | 16.9           | 14.5     | 23.3           | 3.7            | 3.3      | 9.3      | 10.5           | Zr/Th                              | 9.5              | 9.3          |
| Ce/Pb                              | 4.6            | 3.8      | 5.2            | 1.6            | 1.3      | 4.4      | 2.8            | Ce/Pb                              | 1.3              | 1.5          |
| Ce/Nb                              | 12.1           | 7.1      | 7.1            | 5.2            | 4.5      | 10.5     | 8.5            | Ce/Nb                              | 5.1              | 4.6          |
| Th/Nb                              | 1.81           | 1.17     | 1.00           | 2.82           | 2.59     | 2.00     | 1.89           | Th/Nb                              | 1.64             | 1.20         |
| Th/Y                               | 0.66           | 0.44     | 0.51           | 0.75           | 0.67     | 0.83     | 0.72           | Th/Y                               | 0.60             | 0.49         |
| Ba/Ce                              | 10.4           | 9.2      | 8.7            | 4.7            | 5.9      | 16.9     | 16.3           | Ba/Ce                              | 14.3             | 11.6         |
| K/Rb                               | 260            | 160      | 245            | 109            | 102      | 177      | 299            | K/Rb                               | 174              | 153          |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.55           | 0.89     | 0.46           | 1.18           | 1.42     | 1.39     | 0.86           | K <sub>2</sub> O/Na <sub>2</sub> O | 1.70             | 1.27         |
| A/CNK                              | 1.40           | 1.75     | 1.00           | 1.80           | 2.14     | 2.07     | 1.19           | A/CNK                              | 1.51             | 1.35         |
| FeO*/MgO                           | 4.96           | 4.76     | 3.79           | 28.93          | 59.63    | 16.32    | 7.73           | FeO*/MgO                           | 3.04             | 2.90         |

表 2 全岩化学組成一覽表 (2)  
Table 2 Bulk chemical compositions (2)

| rock body                          | Tanoura Igneous Complex (TIC) |            |          |              |              |            |            |          |          |  |            |          |
|------------------------------------|-------------------------------|------------|----------|--------------|--------------|------------|------------|----------|----------|--|------------|----------|
| rock type                          | Granite                       | Granite    | Granite  | Granodiorite | Granodiorite | Tonalite   | Tonalite   | Tonalite | Tonalite |  | Diorite    | Diorite  |
| sample No.                         | 970528Gr                      | 98061701Gr | 98061702 | 9611220102   | 9611220302   | 9611210301 | 9611220103 | 970528To | 98061703 |  | 9611200101 | 970528Qd |
| SiO <sub>2</sub> (wt%)             | 79.35                         | 75.96      | 76.34    | 69.62        | 70.94        | 60.91      | 61.11      | 60.70    | 59.88    |  | 53.77      | 52.71    |
| TiO <sub>2</sub>                   | 0.09                          | 0.18       | 0.14     | 0.42         | 0.34         | 0.78       | 0.81       | 0.74     | 1.02     |  | 1.54       | 1.68     |
| Al <sub>2</sub> O <sub>3</sub>     | 14.48                         | 14.66      | 15.61    | 16.22        | 17.34        | 17.97      | 16.55      | 17.63    | 16.46    |  | 17.85      | 17.82    |
| Fe <sub>2</sub> O <sub>3</sub>     | 1.01                          | 1.60       | 1.60     | 4.32         | 2.85         | 7.50       | 8.77       | 7.92     | 9.13     |  | 9.75       | 11.19    |
| MnO                                | 0.01                          | 0.03       | 0.03     | 0.08         | 0.04         | 0.14       | 0.16       | 0.15     | 0.15     |  | 0.17       | 0.19     |
| MgO                                | 0.18                          | 0.25       | 0.15     | 0.70         | 0.44         | 1.37       | 1.63       | 1.44     | 1.98     |  | 3.69       | 3.55     |
| CaO                                | 2.11                          | 2.66       | 1.70     | 3.21         | 2.82         | 6.01       | 5.18       | 5.29     | 5.55     |  | 9.02       | 8.20     |
| Na <sub>2</sub> O                  | 2.26                          | 3.36       | 3.01     | 3.67         | 3.40         | 4.02       | 3.74       | 4.07     | 3.87     |  | 2.79       | 3.40     |
| K <sub>2</sub> O                   | 0.50                          | 1.25       | 1.40     | 1.64         | 1.74         | 1.05       | 1.80       | 1.83     | 1.75     |  | 1.14       | 0.94     |
| P <sub>2</sub> O <sub>5</sub>      | 0.01                          | 0.05       | 0.03     | 0.13         | 0.08         | 0.24       | 0.25       | 0.23     | 0.21     |  | 0.26       | 0.31     |
| total                              | 100.00                        | 100.00     | 100.01   | 100.01       | 99.99        | 99.99      | 100.00     | 100.00   | 100.00   |  | 99.98      | 99.99    |
| Ti(in ppm)                         | 540                           | 1079       | 839      | 2518         | 2038         | 4676       | 4856       | 4436     | 6115     |  | 9232       | 10072    |
| P(in ppm)                          | 43.6                          | 218        | 131      | 567          | 349          | 1047       | 1090       | 1003     | 916      |  | 1134       | 1352     |
| K(in ppm)                          | 4151                          | 10376      | 11621    | 13614        | 14444        | 8716       | 14942      | 15191    | 14527    |  | 9463       | 7803     |
| Ce                                 | 16.1                          | 148        | 75.4     | 43.7         | 110          | 40.6       | 47.1       | 31.4     | 141      |  | 23.6       | 33.1     |
| Cr                                 | 3.1                           | 2.6        | tr       | 0.0          | 5.4          | 2.6        | 2.4        | 0.5      | 7.1      |  | 33.6       | 5.4      |
| Nb                                 | 2.58                          | 6.76       | 6.60     | 15.27        | 11.35        | 10.95      | 12.23      | 10.56    | 18.50    |  | 6.23       | 9.28     |
| Ni                                 | tr                            | tr         | tr       | tr           | tr           | tr         | tr         | tr       | tr       |  | tr         | tr       |
| Pb                                 | 11.6                          | 14.4       | 15.4     | 14.8         | 15.0         | 13.1       | 10.6       | 11.4     | 10.7     |  | 7.6        | 9.1      |
| Rb                                 | 24.8                          | 64.2       | 65.1     | 89.1         | 96.4         | 38.6       | 68.4       | 70.0     | 87.8     |  | 38.1       | 32.3     |
| Sr                                 | 355                           | 234        | 136      | 298          | 260          | 458        | 357        | 411      | 287      |  | 394.6      | 404.5    |
| Th                                 | 6.3                           | 33.5       | 17.2     | 9.6          | 25.3         | 5.7        | 3.3        | 3.7      | 25.4     |  | 4.57       | 1.97     |
| Y                                  | 11.9                          | 22.5       | 18.5     | 27.2         | 25.5         | 17.3       | 31.3       | 21.9     | 31.8     |  | 16.8       | 20.3     |
| Zr                                 | 148                           | 182        | 122      | 159          | 233          | 219        | 219        | 217      | 366      |  | 94.2       | 114.7    |
| Ba                                 | 182                           | 228        | 166      | 358          | 370          | 265        | 416        | 430      | 354      |  | 229        | 153      |
| Ti/Zr                              | 3.6                           | 5.9        | 6.9      | 15.9         | 8.7          | 21.3       | 22.2       | 20.4     | 16.7     |  | 98.0       | 87.8     |
| Ti/Y                               | 45.3                          | 48.0       | 45.4     | 92.6         | 79.9         | 270        | 155        | 203      | 192      |  | 549.5      | 496.1    |
| Zr/Y                               | 12.4                          | 8.1        | 6.6      | 5.8          | 9.2          | 12.7       | 7.0        | 9.9      | 11.5     |  | 5.61       | 5.65     |
| Nb/Y                               | 0.22                          | 0.30       | 0.36     | 0.56         | 0.45         | 0.63       | 0.39       | 0.48     | 0.58     |  | 0.37       | 0.46     |
| Ce/Th                              | 2.6                           | 4.4        | 4.4      | 4.6          | 4.4          | 7.1        | 14.4       | 8.5      | 5.5      |  | 5.2        | 16.8     |
| Rb/Zr                              | 0.17                          | 0.35       | 0.53     | 0.56         | 0.41         | 0.18       | 0.31       | 0.32     | 0.24     |  | 0.40       | 0.28     |
| Zr/Th                              | 23.6                          | 5.4        | 7.1      | 16.6         | 9.2          | 38.4       | 66.9       | 58.6     | 14.4     |  | 20.6       | 58.2     |
| Ce/Pb                              | 1.4                           | 10.3       | 4.9      | 3.0          | 7.4          | 3.1        | 4.4        | 2.8      | 13.2     |  | 3.1        | 3.6      |
| Ce/Nb                              | 6.2                           | 21.8       | 11.4     | 2.9          | 9.7          | 3.7        | 3.9        | 3.0      | 7.6      |  | 3.8        | 3.6      |
| Th/Nb                              | 2.43                          | 4.96       | 2.60     | 0.63         | 2.23         | 0.52       | 0.27       | 0.35     | 1.37     |  | 0.73       | 0.21     |
| Th/Y                               | 0.53                          | 1.49       | 0.93     | 0.35         | 0.99         | 0.33       | 0.10       | 0.17     | 0.80     |  | 0.27       | 0.10     |
| Ba/Ce                              | 11.3                          | 1.5        | 2.2      | 8.2          | 3.4          | 6.5        | 8.8        | 13.7     | 2.5      |  | 9.70       | 4.62     |
| K/Rb                               | 167                           | 162        | 179      | 153          | 150          | 226        | 218        | 217      | 165      |  | 248.4      | 241.6    |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.22                          | 0.37       | 0.47     | 0.45         | 0.51         | 0.26       | 0.48       | 0.45     | 0.45     |  | 0.41       | 0.28     |
| A/CNK                              | 1.79                          | 1.25       | 1.63     | 1.19         | 1.38         | 0.96       | 0.94       | 0.96     | 0.90     |  | 0.80       | 0.83     |
| FeO*/MgO                           | 4.99                          | 5.70       | 9.49     | 5.49         | 5.76         | 4.87       | 4.79       | 4.90     | 4.10     |  | 2.35       | 2.81     |

| rock body                          | Tanoura Igneous Complex (TIC) |            |          |          |                      | Tanoura Igneous Complex(TIC) |             |            |            |             |             |          |
|------------------------------------|-------------------------------|------------|----------|----------|----------------------|------------------------------|-------------|------------|------------|-------------|-------------|----------|
| rock type                          | Gabbro                        | Gabbro     | Gabbro   | Gabbro   | Contact part (Gr-Di) | MME                          | MME         | MME        | MME        | MME         | MME         | MME      |
| sample No.                         | 9608300202                    | 9608300203 | 98061201 | 98061202 | 9611200105           | 96060402-1MME                | 96090304-05 | 9611210302 | 9611220107 | 97052701-02 | 98061502-M2 | 98061704 |
| SiO <sub>2</sub> (wt%)             | 47.36                         | 47.55      | 46.52    | 44.29    | 72.68                | 53.32                        | 51.03       | 51.21      | 50.61      | 49.38       | 48.03       | 51.20    |
| TiO <sub>2</sub>                   | 0.27                          | 0.29       | 1.46     | 2.24     | 0.23                 | 1.57                         | 0.93        | 1.41       | 1.35       | 1.84        | 1.43        | 1.29     |
| Al <sub>2</sub> O <sub>3</sub>     | 22.21                         | 16.48      | 17.86    | 18.57    | 14.38                | 17.24                        | 15.35       | 18.85      | 17.89      | 19.00       | 18.77       | 17.55    |
| Fe <sub>2</sub> O <sub>3</sub>     | 5.96                          | 9.36       | 11.19    | 12.82    | 2.60                 | 10.64                        | 11.65       | 10.48      | 10.21      | 12.38       | 13.07       | 10.04    |
| MnO                                | 0.11                          | 0.15       | 0.19     | 0.19     | 0.05                 | 0.19                         | 0.19        | 0.17       | 0.17       | 0.22        | 0.18        | 0.19     |
| MgO                                | 7.40                          | 11.23      | 7.45     | 7.43     | 0.43                 | 3.98                         | 7.91        | 3.65       | 5.31       | 3.62        | 3.63        | 5.04     |
| CaO                                | 15.60                         | 13.42      | 13.06    | 12.47    | 2.17                 | 8.61                         | 8.16        | 9.38       | 9.98       | 9.15        | 10.68       | 10.04    |
| Na <sub>2</sub> O                  | 0.92                          | 0.95       | 1.86     | 1.60     | 3.91                 | 3.32                         | 2.97        | 3.52       | 3.64       | 3.57        | 3.33        | 3.29     |
| K <sub>2</sub> O                   | 0.16                          | 0.54       | 0.26     | 0.25     | 3.48                 | 0.80                         | 1.64        | 1.06       | 0.57       | 0.44        | 0.56        | 1.12     |
| P <sub>2</sub> O <sub>5</sub>      | 0.02                          | 0.02       | 0.14     | 0.14     | 0.08                 | 0.35                         | 0.15        | 0.28       | 0.25       | 0.39        | 0.33        | 0.24     |
| total                              | 100.01                        | 99.99      | 99.99    | 100.00   | 100.01               | 100.02                       | 99.98       | 100.01     | 99.98      | 99.99       | 100.01      | 100.00   |
| Ti(in ppm)                         | 1619                          | 1739       | 8753     | 13429    | 1379                 | 9412                         | 5575        | 8453       | 8093       | 11031       | 8573        | 7734     |
| P(in ppm)                          | 87                            | 87         | 611      | 611      | 349                  | 1526                         | 654         | 1221       | 1090       | 1701        | 1439        | 1047     |
| K(in ppm)                          | 1328                          | 4483       | 2158     | 2075     | 28887                | 6641                         | 13614       | 8799       | 4732       | 3652        | 4649        | 9297     |
| Ce                                 | 4.9                           | 11.2       | 9.6      | 16.5     | 61.3                 | 37.3                         | 45.9        | 42.8       | 28.4       | 36.3        | 62.6        | 24.1     |
| Cr                                 | 507                           | 569        | 193      | 19.7     | 2.8                  | 62.0                         | 391         | 18.7       | 113        | 12.5        | 48.5        | 113.4    |
| Nb                                 | 0.32                          | 0.83       | 2.93     | 4.59     | 8.00                 | 8.74                         | 5.32        | 7.51       | 6.09       | 9.95        | 12.86       | 5.67     |
| Ni                                 | 37.4                          | 59.6       | 14.3     | 4.3      | tr                   | tr                           | 82.8        | tr         | 20.4       | tr          | tr          | 5.5      |
| Pb                                 | 2.5                           | 3.1        | 3.4      | 2.8      | 24.8                 | 9.3                          | 5.8         | 10.9       | 7.5        | 9.2         | 6.5         | 5.5      |
| Rb                                 | 7.0                           | 19.4       | 7.7      | 7.4      | 77.3                 | 23.9                         | 57.1        | 31.4       | 13.8       | 12.0        | 10.5        | 43.9     |
| Sr                                 | 410                           | 353        | 366      | 374      | 224                  | 396                          | 295         | 424        | 392        | 449         | 439         | 379      |
| Th                                 | tr                            | tr         | 0.02     | tr       | 9.38                 | 1.15                         | 0.87        | 0.98       | 0.37       | 0.78        | 0.20        | 1.92     |
| Y                                  | 10.8                          | 11.7       | 15.9     | 16.9     | 17.6                 | 19.2                         | 23.7        | 20.1       | 17.0       | 19.8        | 31.9        | 17.9     |
| Zr                                 | 12.1                          | 15.6       | 31.3     | 32.7     | 131                  | 120                          | 83          | 101        | 107        | 134         | 130         | 95       |
| Ba                                 | 47                            | 122        | 62       | 57       | 666                  | 181                          | 359         | 294        | 121        | 122         | 122         | 170      |
| Ti/Zr                              | 134                           | 111        | 280      | 411      | 10.5                 | 78.2                         | 67.3        | 83.8       | 75.9       | 82.3        | 66.0        | 81.6     |
| Ti/Y                               | 150                           | 149        | 550      | 795      | 78.3                 | 490                          | 235         | 421        | 476        | 557         | 269         | 432      |
| Zr/Y                               | 1.12                          | 1.33       | 1.97     | 1.93     | 7.44                 | 6.27                         | 3.50        | 5.02       | 6.28       | 6.77        | 4.07        | 5.30     |
| Nb/Y                               | 0.03                          | 0.07       | 0.18     | 0.27     | 0.45                 | 0.46                         | 0.22        | 0.37       | 0.36       | 0.50        | 0.40        | 0.32     |
| Ce/Th                              | —                             | —          | 480      | —        | 6.5                  | 32.4                         | 52.8        | 43.7       | 76.8       | 46.5        | 313.0       | 12.6     |
| Rb/Zr                              | 0.58                          | 1.24       | 0.25     | 0.23     | 0.59                 | 0.20                         | 0.69        | 0.31       | 0.13       | 0.09        | 0.08        | 0.46     |
| Zr/Th                              | —                             | —          | 1565     | —        | 14.0                 | 105                          | 95.3        | 103        | 288        | 172         | 650         | 49.4     |
| Ce/Pb                              | 2.0                           | 3.6        | 2.8      | 5.9      | 2.5                  | 4.0                          | 7.9         | 3.9        | 3.8        | 3.9         | 9.6         | 4.4      |
| Ce/Nb                              | 15.3                          | 13.5       | 3.3      | 3.6      | 7.7                  | 4.3                          | 8.6         | 5.7        | 4.7        | 3.6         | 4.9         | 4.3      |
| Th/Nb                              | —                             | —          | 0.01     | —        | 1.17                 | 0.13                         | 0.16        | 0.13       | 0.06       | 0.08        | 0.02        | 0.34     |
| Th/Y                               | —                             | —          | 0.00     | —        | 0.53                 | 0.06                         | 0.04        | 0.05       | 0.02       | 0.04        | 0.01        | 0.11     |
| Ba/Ce                              | 9.59                          | 10.89      | 6.46     | 3.45     | 10.86                | 4.85                         | 7.82        | 6.87       | 4.26       | 3.36        | 1.95        | 7.05     |
| K/Rb                               | 190                           | 231        | 280      | 280      | 374                  | 278                          | 238         | 280        | 343        | 304         | 443         | 212      |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.17                          | 0.57       | 0.14     | 0.16     | 0.89                 | 0.24                         | 0.55        | 0.30       | 0.16       | 0.12        | 0.17        | 0.34     |
| A/CNK                              | 0.74                          | 0.62       | 0.66     | 0.73     | 1.02                 | 0.78                         | 0.71        | 0.79       | 0.72       | 0.83        | 0.74        | 0.71     |
| FeO*/MgO                           | 0.72                          | 0.74       | 1.34     | 1.54     | 5.38                 | 2.38                         | 1.31        | 2.56       | 1.71       | 3.04        | 3.20        | 1.77     |

表 2 全岩化学組成一覽表 (3)  
Table 2 Bulk chemical compositions (3)

| rock body                          | Tanoura Igneous Complex(TIC) |                     |                     |                     |                     |                    |                    |                    |              |              |               |         |  |  |
|------------------------------------|------------------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|--------------------|--------------|--------------|---------------|---------|--|--|
| rock type                          | xenoporphyritic MME          | xenoporphyritic MME | xenoporphyritic MME | xenoporphyritic MME | xenoporphyritic MME | MME (microdiorite) | MME (microdiorite) | MME (microdiorite) |              |              |               |         |  |  |
| sample No.                         | 9611210102                   | 9611210303          | 9611220104          | 96060602            | 9611200104          | 960611-2           | 9611200103         | 9611220105         | 96061201MD-7 | 96061201MD-9 | 96061204MD-15 | HE-MD-3 |  |  |
| SiO <sub>2</sub> (wt%)             | 57.66                        | 53.46               | 54.07               | 52.93               | 50.28               | 54.47              | 53.23              | 56.10              | 47.93        | 47.76        | 47.33         | 52.74   |  |  |
| TiO <sub>2</sub>                   | 1.24                         | 1.60                | 1.12                | 1.77                | 1.95                | 1.14               | 1.60               | 1.24               | 1.75         | 1.64         | 2.15          | 1.67    |  |  |
| Al <sub>2</sub> O <sub>3</sub>     | 17.88                        | 18.59               | 18.60               | 18.42               | 16.75               | 16.91              | 17.39              | 17.66              | 20.34        | 18.82        | 18.88         | 17.92   |  |  |
| Fe <sub>2</sub> O <sub>3</sub>     | 8.86                         | 10.84               | 8.75                | 11.41               | 13.05               | 9.06               | 11.10              | 8.51               | 11.98        | 12.69        | 13.93         | 10.90   |  |  |
| MnO                                | 0.16                         | 0.20                | 0.14                | 0.21                | 0.22                | 0.16               | 0.20               | 0.13               | 0.21         | 0.22         | 0.23          | 0.19    |  |  |
| MgO                                | 2.10                         | 2.59                | 4.16                | 2.96                | 4.78                | 5.20               | 3.69               | 3.52               | 4.10         | 5.17         | 3.85          | 3.16    |  |  |
| CaO                                | 6.79                         | 7.87                | 8.62                | 8.10                | 8.97                | 9.21               | 8.45               | 7.67               | 10.49        | 10.46        | 9.87          | 8.00    |  |  |
| Na <sub>2</sub> O                  | 3.79                         | 3.54                | 2.83                | 3.12                | 2.84                | 2.82               | 3.02               | 3.38               | 2.50         | 2.49         | 2.93          | 3.21    |  |  |
| K <sub>2</sub> O                   | 1.20                         | 0.95                | 1.49                | 0.65                | 0.87                | 0.90               | 0.96               | 1.56               | 0.33         | 0.41         | 0.29          | 1.81    |  |  |
| P <sub>2</sub> O <sub>5</sub>      | 0.30                         | 0.36                | 0.22                | 0.42                | 0.28                | 0.13               | 0.35               | 0.24               | 0.38         | 0.35         | 0.54          | 0.40    |  |  |
| total                              | 99.98                        | 100.00              | 100.00              | 99.99               | 99.99               | 100.00             | 99.99              | 100.01             | 100.01       | 100.01       | 100.00        | 100.00  |  |  |
| Ti(in ppm)                         | 7434                         | 9592                | 6714                | 10611               | 11690               | 6834               | 9592               | 7434               | 10491        | 9832         | 12889         | 10012   |  |  |
| P(in ppm)                          | 1308                         | 1570                | 959                 | 1832                | 1221                | 567                | 1526               | 1047               | 1657         | 1526         | 2355          | 1744    |  |  |
| K(in ppm)                          | 9961                         | 7886                | 12368               | 5396                | 7222                | 7471               | 7969               | 12950              | 2739         | 3403         | 2407          | 15025   |  |  |
| Ce                                 | 48.9                         | 53.8                | 34.5                | 31.8                | 27.9                | 26.5               | 40.1               | 36.4               | 44.0         | 43.4         | 42.7          | 50.6    |  |  |
| Cr                                 | 2.38                         | 1.51                | 61.40               | 4.96                | 66.50               | 118                | 45.6               | 25.7               | 15.5         | 22.1         | 9.3           | tr      |  |  |
| Nb                                 | 10.50                        | 14.84               | 6.96                | 14.89               | 10.11               | 4.80               | 10.22              | 6.96               | 9.12         | 8.33         | 11.67         | 10.35   |  |  |
| Ni                                 | tr                           | tr                  | tr                  | tr                  | tr                  | 8.9                | tr                 | tr                 | tr           | 6.1          | tr            | tr      |  |  |
| Pb                                 | 14.6                         | 9.7                 | 9.2                 | 8.7                 | 6.5                 | 7.0                | 7.8                | 13.0               | 5.0          | 5.9          | 5.1           | 10.8    |  |  |
| Rb                                 | 47.4                         | 40.1                | 53.5                | 21.7                | 25.9                | 38.3               | 29.0               | 61.4               | 9.6          | 13.4         | 6.0           | 68.6    |  |  |
| Sr                                 | 421                          | 450                 | 439                 | 438                 | 374                 | 311                | 411                | 411                | 490          | 430          | 513           | 383     |  |  |
| Th                                 | 7.36                         | 2.99                | 2.90                | 2.97                | 2.07                | 4.40               | 2.53               | 5.57               | tr           | 1.02         | 0.86          | 1.18    |  |  |
| Y                                  | 20.3                         | 25.4                | 16.4                | 19.2                | 21.2                | 17.1               | 21.2               | 16.5               | 18.4         | 19.4         | 21.3          | 21.2    |  |  |
| Zr                                 | 178                          | 144                 | 85.6                | 152                 | 84.3                | 74.6               | 111                | 94.0               | 111          | 96.4         | 124           | 147     |  |  |
| Ba                                 | 228                          | 266                 | 296                 | 138                 | 164                 | 249                | 201                | 261                | 127          | 108          | 119           | 351     |  |  |
| Ti/Zr                              | 41.7                         | 66.8                | 78.4                | 70.0                | 139                 | 91.6               | 86.8               | 79.1               | 94.4         | 102          | 104           | 68.1    |  |  |
| Ti/Y                               | 366                          | 378                 | 409                 | 553                 | 551                 | 400                | 452                | 451                | 570          | 507          | 605           | 472     |  |  |
| Zr/Y                               | 8.77                         | 5.65                | 5.22                | 7.89                | 3.98                | 4.36               | 5.21               | 5.70               | 6.04         | 4.95         | 5.80          | 6.93    |  |  |
| Nb/Y                               | 0.52                         | 0.58                | 0.42                | 0.78                | 0.48                | 0.28               | 0.48               | 0.42               | 0.50         | 0.43         | 0.52          | 0.49    |  |  |
| Ce/Th                              | 6.6                          | 18.0                | 11.9                | 10.7                | 13.5                | 6.0                | 15.8               | 6.5                | —            | 42.5         | 49.7          | 42.9    |  |  |
| Rb/Zr                              | 0.27                         | 0.28                | 0.63                | 0.14                | 0.31                | 0.51               | 0.26               | 0.65               | 0.09         | 0.14         | 0.05          | 0.47    |  |  |
| Zr/Th                              | 24.2                         | 48.0                | 29.5                | 51.0                | 40.7                | 17.0               | 43.7               | 16.9               | —            | 94.2         | 144           | 125     |  |  |
| Ce/Pb                              | 3.3                          | 5.5                 | 3.8                 | 3.7                 | 4.3                 | 3.8                | 5.1                | 2.8                | 8.8          | 7.4          | 8.4           | 4.7     |  |  |
| Ce/Nb                              | 4.7                          | 3.6                 | 5.0                 | 2.1                 | 2.8                 | 5.5                | 3.9                | 5.2                | 4.8          | 5.2          | 3.7           | 4.9     |  |  |
| Th/Nb                              | 0.70                         | 0.20                | 0.42                | 0.20                | 0.20                | 0.92               | 0.25               | 0.80               | —            | 0.12         | 0.07          | 0.11    |  |  |
| Th/Y                               | 0.36                         | 0.12                | 0.18                | 0.15                | 0.10                | 0.26               | 0.12               | 0.34               | —            | 0.05         | 0.04          | 0.06    |  |  |
| Ba/Ce                              | 4.66                         | 4.94                | 8.58                | 4.34                | 5.88                | 9.40               | 5.01               | 7.17               | 2.89         | 2.49         | 2.79          | 6.94    |  |  |
| K/Rb                               | 210                          | 197                 | 231                 | 249                 | 279                 | 195                | 275                | 211                | 285          | 254          | 401           | 219     |  |  |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.32                         | 0.27                | 0.53                | 0.21                | 0.31                | 0.32               | 0.32               | 0.46               | 0.13         | 0.16         | 0.10          | 0.56    |  |  |
| A/CNK                              | 0.90                         | 0.88                | 0.85                | 0.90                | 0.76                | 0.76               | 0.81               | 0.83               | 0.86         | 0.80         | 0.82          | 0.82    |  |  |
| FeO*/MgO                           | 3.75                         | 3.72                | 1.87                | 3.43                | 2.43                | 1.55               | 2.68               | 2.15               | 2.60         | 2.18         | 3.22          | 3.07    |  |  |

| rock body                          | Tanoura Igneous Complex(TIC) |                          |                      |                         |                |                       |                           |                |                |                |                |                |
|------------------------------------|------------------------------|--------------------------|----------------------|-------------------------|----------------|-----------------------|---------------------------|----------------|----------------|----------------|----------------|----------------|
| rock type                          | Composite dike               | Composite dike           | Composite dike       | Composite dike          | Composite dike | Composite dike        | Composite dike            | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike |
| sample No.                         | HE-MD-8 (mafic part)         | HE-MD-8-9F (felsic part) | HE-MD-9 (mafic part) | HE-MD-22-D (mafic part) | HE-MD-22Hybrid | 98061203 (mafic part) | 98061204 (tonalitic part) | 96061102 Mafic | 96061201 MD-8  | 9611210201     | 9611210305     | 97052802-01    |
| SiO <sub>2</sub> (wt%)             | 52.76                        | 71.76                    | 53.16                | 51.29                   | 62.73          | 59.52                 | 67.67                     | 51.84          | 60.44          | 53.96          | 51.03          | 52.84          |
| TiO <sub>2</sub>                   | 1.25                         | 0.33                     | 1.21                 | 1.17                    | 0.81           | 1.00                  | 0.44                      | 1.22           | 0.85           | 1.21           | 1.00           | 1.38           |
| Al <sub>2</sub> O <sub>3</sub>     | 17.95                        | 16.71                    | 17.86                | 17.90                   | 17.04          | 16.33                 | 17.86                     | 17.56          | 17.01          | 17.73          | 17.25          | 17.90          |
| Fe <sub>2</sub> O <sub>3</sub>     | 9.76                         | 3.26                     | 9.56                 | 9.94                    | 6.93           | 8.49                  | 4.42                      | 9.85           | 6.77           | 9.39           | 10.08          | 9.92           |
| MnO                                | 0.18                         | 0.06                     | 0.18                 | 0.17                    | 0.10           | 0.16                  | 0.07                      | 0.20           | 0.11           | 0.15           | 0.18           | 0.17           |
| MgO                                | 4.53                         | 0.65                     | 4.26                 | 5.17                    | 1.31           | 3.07                  | 0.76                      | 5.19           | 3.41           | 4.93           | 6.40           | 3.80           |
| CaO                                | 8.86                         | 2.42                     | 8.56                 | 9.52                    | 5.59           | 6.54                  | 3.86                      | 9.10           | 6.90           | 9.16           | 10.37          | 8.42           |
| Na <sub>2</sub> O                  | 3.19                         | 2.69                     | 3.46                 | 3.44                    | 3.35           | 3.44                  | 3.40                      | 3.44           | 3.32           | 2.58           | 2.95           | 3.52           |
| K <sub>2</sub> O                   | 1.22                         | 2.01                     | 1.44                 | 1.19                    | 1.79           | 1.27                  | 1.43                      | 1.36           | 1.01           | 0.69           | 0.59           | 1.77           |
| P <sub>2</sub> O <sub>5</sub>      | 0.29                         | 0.11                     | 0.31                 | 0.21                    | 0.36           | 0.18                  | 0.09                      | 0.24           | 0.18           | 0.20           | 0.15           | 0.28           |
| total                              | 99.99                        | 100.00                   | 100.00               | 100.00                  | 100.01         | 100.00                | 100.00                    | 100.00         | 100.00         | 100.00         | 100.00         | 100.00         |
| Ti(in ppm)                         | 7494                         | 1978                     | 7254                 | 7014                    | 4856           | 5995                  | 2638                      | 7314           | 5096           | 7254           | 5995           | 8273           |
| P(in ppm)                          | 1265                         | 480                      | 1352                 | 916                     | 1570           | 785                   | 392                       | 1047           | 785            | 872            | 654            | 1221           |
| K(in ppm)                          | 10127                        | 16685                    | 11953                | 9878                    | 14859          | 10542                 | 11870                     | 11289          | 8384           | 5728           | 4898           | 14693          |
| Ce                                 | 28.7                         | 45.6                     | 25.1                 | 23.6                    | 59.7           | 40.4                  | 130.1                     | 35.7           | 27.7           | 35.3           | 23.1           | 26.0           |
| Cr                                 | 63.3                         | 5.4                      | 61.6                 | 105.7                   | 9.6            | 34.8                  | 2.8                       | 104.5          | 63.1           | 119.9          | 125.2          | 48.8           |
| Nb                                 | 6.41                         | 8.13                     | 6.43                 | 5.46                    | 15.73          | 7.01                  | 10.77                     | 5.98           | 6.57           | 5.85           | 4.07           | 7.33           |
| Ni                                 | 10.5                         | tr                       | 11.4                 | 9.9                     | tr             | tr                    | tr                        | 21.2           | 7.7            | 20.1           | 7.8            | tr             |
| Pb                                 | 3.9                          | 11.3                     | 5.8                  | 7.4                     | 7.8            | 9.4                   | 12.8                      | 8.9            | 6.1            | 6.0            | 4.8            | 8.7            |
| Rb                                 | 65.4                         | 92.8                     | 67.6                 | 35.2                    | 67.1           | 42.7                  | 47.9                      | 78.3           | 29.5           | 20.1           | 17.7           | 98.2           |
| Sr                                 | 376                          | 287                      | 369                  | 372                     | 405            | 362                   | 370                       | 368            | 448            | 405            | 327            | 399            |
| Th                                 | 1.11                         | 8.20                     | 1.72                 | 1.73                    | 7.70           | 4.55                  | 16.37                     | 1.79           | 3.94           | 2.37           | 0.97           | 2.14           |
| Y                                  | 19.7                         | 20.4                     | 19.8                 | 18.2                    | 18.9           | 20.2                  | 23.3                      | 20.0           | 15.7           | 16.1           | 15.8           | 19.7           |
| Zr                                 | 96.1                         | 157                      | 96.1                 | 84.9                    | 296            | 144                   | 359                       | 93             | 124            | 101            | 63             | 120            |
| Ba                                 | 218                          | 634                      | 204                  | 203                     | 430            | 381                   | 554                       | 199            | 327            | 236            | 175            | 171            |
| Ti/Zr                              | 78.0                         | 12.6                     | 75.5                 | 82.6                    | 16.4           | 41.7                  | 7.4                       | 78.8           | 41.2           | 72.2           | 95.0           | 69.2           |
| Ti/Y                               | 380                          | 97                       | 366                  | 385                     | 257            | 297                   | 113                       | 366            | 325            | 451            | 379            | 420            |
| Zr/Y                               | 4.88                         | 7.69                     | 4.85                 | 4.66                    | 15.66          | 7.11                  | 15.39                     | 4.64           | 7.88           | 6.24           | 3.99           | 6.07           |
| Nb/Y                               | 0.33                         | 0.40                     | 0.32                 | 0.30                    | 0.83           | 0.35                  | 0.46                      | 0.30           | 0.42           | 0.36           | 0.26           | 0.37           |
| Ce/Th                              | 25.9                         | 5.6                      | 14.6                 | 13.6                    | 7.8            | 8.9                   | 7.9                       | 19.9           | 7.0            | 14.9           | 23.8           | 12.1           |
| Rb/Zr                              | 0.68                         | 0.59                     | 0.70                 | 0.41                    | 0.23           | 0.30                  | 0.13                      | 0.84           | 0.24           | 0.20           | 0.28           | 0.82           |
| Zr/Th                              | 86.6                         | 19.1                     | 55.9                 | 49.1                    | 38.4           | 31.6                  | 21.9                      | 51.8           | 31.4           | 42.4           | 65.1           | 55.9           |
| Ce/Pb                              | 7.4                          | 4.0                      | 4.3                  | 3.2                     | 7.7            | 4.3                   | 10.2                      | 4.0            | 4.5            | 5.9            | 4.8            | 3.0            |
| Ce/Nb                              | 4.5                          | 5.6                      | 3.9                  | 4.3                     | 3.8            | 5.8                   | 12.1                      | 6.0            | 4.2            | 6.0            | 5.7            | 3.5            |
| Th/Nb                              | 0.17                         | 1.01                     | 0.27                 | 0.32                    | 0.49           | 0.65                  | 1.52                      | 0.30           | 0.60           | 0.41           | 0.24           | 0.29           |
| Th/Y                               | 0.06                         | 0.40                     | 0.09                 | 0.10                    | 0.41           | 0.23                  | 0.70                      | 0.09           | 0.25           | 0.15           | 0.06           | 0.11           |
| Ba/Ce                              | 7.60                         | 13.90                    | 8.13                 | 8.60                    | 7.20           | 9.43                  | 4.26                      | 5.57           | 11.81          | 6.69           | 7.58           | 6.58           |
| K/Rb                               | 155                          | 180                      | 177                  | 281                     | 221            | 247                   | 248                       | 144            | 284            | 285            | 277            | 150            |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.38                         | 0.75                     | 0.42                 | 0.35                    | 0.53           | 0.37                  | 0.42                      | 0.40           | 0.30           | 0.27           | 0.20           | 0.50           |
| A/CNK                              | 0.79                         | 1.52                     | 0.78                 | 0.74                    | 0.97           | 0.86                  | 1.26                      | 0.74           | 0.89           | 0.82           | 0.71           | 0.78           |
| FeO*/MgO                           | 1.92                         | 4.46                     | 2.00                 | 1.71                    | 4.71           | 2.46                  | 5.18                      | 1.69           | 1.77           | 1.70           | 1.40           | 2.32           |

表 2 全岩化学組成一覽表 (4)  
Table 2 Bulk chemical compositions (4)

| rock body                          | Tanoura Igneous Complex(TIC) |                |                |                |                |                |                |                |                |                |                |                |
|------------------------------------|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| rock type                          | Disrupted dike               | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike | Disrupted dike |
| sample No.                         | HE-MD-2                      | HE-MD-4        | HE-MD-5        | HE-MD-6        | HE-MD-7        | HE-MD-11       | HE-MD-16-D     | HE-MD-20       | HE-MD-21       | HE-MD-23       | HE-MD-31       | HE-MD-32       |
| SiO <sub>2</sub> (wt%)             | 51.24                        | 58.13          | 53.42          | 50.66          | 54.94          | 51.48          | 51.08          | 51.18          | 51.94          | 51.82          | 53.31          | 52.72          |
| TiO <sub>2</sub>                   | 1.50                         | 1.50           | 1.17           | 1.37           | 1.19           | 1.51           | 1.06           | 1.37           | 1.17           | 1.17           | 1.55           | 1.23           |
| Al <sub>2</sub> O <sub>3</sub>     | 17.33                        | 17.16          | 17.54          | 18.17          | 16.99          | 17.13          | 16.13          | 17.87          | 17.78          | 17.59          | 17.10          | 16.47          |
| Fe <sub>2</sub> O <sub>3</sub>     | 10.80                        | 7.64           | 8.82           | 10.35          | 8.53           | 11.05          | 11.99          | 10.60          | 10.14          | 9.57           | 10.23          | 9.44           |
| MnO                                | 0.25                         | 0.17           | 0.15           | 0.20           | 0.14           | 0.21           | 0.24           | 0.20           | 0.19           | 0.17           | 0.16           | 0.16           |
| MgO                                | 4.61                         | 2.94           | 5.19           | 5.24           | 5.60           | 4.56           | 5.88           | 4.60           | 5.12           | 5.54           | 3.80           | 5.68           |
| CaO                                | 8.72                         | 6.99           | 9.38           | 9.93           | 8.44           | 8.98           | 7.25           | 9.08           | 9.04           | 9.27           | 8.39           | 8.79           |
| Na <sub>2</sub> O                  | 3.53                         | 3.94           | 2.95           | 2.69           | 2.84           | 3.48           | 3.77           | 3.37           | 2.88           | 3.73           | 3.93           | 3.93           |
| K <sub>2</sub> O                   | 1.71                         | 1.22           | 1.14           | 1.11           | 1.09           | 1.27           | 2.41           | 1.47           | 1.52           | 0.91           | 1.18           | 1.32           |
| P <sub>2</sub> O <sub>5</sub>      | 0.30                         | 0.32           | 0.23           | 0.27           | 0.25           | 0.32           | 0.19           | 0.27           | 0.23           | 0.23           | 0.35           | 0.26           |
| total                              | 99.99                        | 100.01         | 99.99          | 99.99          | 100.01         | 99.99          | 100.00         | 100.01         | 100.01         | 100.00         | 100.00         | 100.00         |
| Ti(in ppm)                         | 8993                         | 8993           | 7014           | 8213           | 7134           | 9052           | 6355           | 8213           | 7014           | 7014           | 9292           | 7374           |
| P(in ppm)                          | 1308                         | 1396           | 1003           | 1177           | 1090           | 1396           | 829            | 1177           | 1003           | 1003           | 1526           | 1134           |
| K(in ppm)                          | 14195                        | 10127          | 9463           | 9214           | 9048           | 10542          | 20005          | 12202          | 12618          | 7554           | 9795           | 10957          |
| Ce                                 | 31.1                         | 28.1           | 30.7           | 32.8           | 25.7           | 36.5           | 25.9           | 25.5           | 24.6           | 30.3           | 31.1           | 28.1           |
| Cr                                 | 73.7                         | 16.2           | 117            | 108            | 231            | 67.0           | 156            | 52.1           | 97.8           | 126            | 24.5           | 214            |
| Nb                                 | 6.97                         | 9.23           | 6.60           | 6.67           | 6.88           | 7.05           | 7.04           | 6.33           | 6.03           | 6.02           | 7.81           | 7.36           |
| Ni                                 | tr                           | tr             | 25.7           | 12.2           | 58.5           | tr             | 45.0           | tr             | 10.1           | 18.6           | tr             | 48.2           |
| Pb                                 | 16.2                         | 6.0            | 3.4            | 5.1            | 4.4            | 6.0            | 10.3           | 7.7            | 6.4            | 4.4            | 4.5            | 7.6            |
| Rb                                 | 121.0                        | 63.6           | 56.9           | 68.8           | 45.3           | 77.6           | 139.6          | 75.0           | 74.9           | 27.7           | 47.9           | 51.8           |
| Sr                                 | 369                          | 429            | 382            | 409            | 378            | 383            | 192            | 367            | 356            | 389            | 407            | 358            |
| Th                                 | 2.56                         | 3.76           | 2.58           | 0.99           | 1.27           | 1.95           | 1.27           | 1.25           | 2.64           | 2.01           | 3.17           | 1.08           |
| Y                                  | 21.5                         | 19.3           | 17.8           | 18.5           | 17.0           | 20.3           | 26.2           | 19.9           | 19.9           | 18.5           | 19.5           | 17.4           |
| Zr                                 | 106                          | 127            | 110            | 101            | 112            | 112            | 78             | 94             | 88             | 99             | 123            | 105            |
| Ba                                 | 234                          | 299            | 226            | 204            | 260            | 187            | 304            | 217            | 203            | 201            | 254            | 238            |
| Ti/Zr                              | 84.7                         | 70.9           | 63.8           | 81.6           | 63.8           | 80.6           | 81.5           | 87.6           | 79.9           | 71.2           | 75.7           | 70.6           |
| Ti/Y                               | 418                          | 466            | 394            | 444            | 420            | 446            | 243            | 413            | 352            | 379            | 477            | 424            |
| Zr/Y                               | 4.94                         | 6.57           | 6.18           | 5.44           | 6.58           | 5.53           | 2.98           | 4.71           | 4.41           | 5.32           | 6.29           | 6.01           |
| Nb/Y                               | 0.32                         | 0.48           | 0.37           | 0.36           | 0.40           | 0.35           | 0.27           | 0.32           | 0.30           | 0.33           | 0.40           | 0.42           |
| Ce/Th                              | 12.1                         | 7.5            | 11.9           | 33.1           | 20.2           | 18.7           | 20.4           | 20.4           | 9.3            | 15.1           | 9.8            | 26.0           |
| Rb/Zr                              | 1.14                         | 0.50           | 0.52           | 0.68           | 0.41           | 0.69           | 1.79           | 0.80           | 0.85           | 0.28           | 0.39           | 0.50           |
| Zr/Th                              | 41.5                         | 33.7           | 42.6           | 102            | 88.0           | 57.6           | 61.4           | 75.0           | 33.3           | 49.0           | 38.7           | 96.8           |
| Ce/Pb                              | 1.9                          | 4.7            | 9.0            | 6.4            | 5.8            | 6.1            | 2.5            | 3.3            | 3.8            | 6.9            | 6.9            | 3.7            |
| Ce/Nb                              | 4.5                          | 3.0            | 4.7            | 4.9            | 3.7            | 5.2            | 3.7            | 4.0            | 4.1            | 5.0            | 4.0            | 3.8            |
| Th/Nb                              | 0.37                         | 0.41           | 0.39           | 0.15           | 0.18           | 0.28           | 0.18           | 0.20           | 0.44           | 0.33           | 0.41           | 0.15           |
| Th/Y                               | 0.12                         | 0.19           | 0.14           | 0.05           | 0.07           | 0.10           | 0.05           | 0.06           | 0.13           | 0.11           | 0.16           | 0.06           |
| Ba/Ce                              | 7.52                         | 10.64          | 7.36           | 6.22           | 10.12          | 5.12           | 11.74          | 8.51           | 8.25           | 6.63           | 8.17           | 8.47           |
| K/Rb                               | 117                          | 159            | 166            | 134            | 200            | 136            | 143            | 163            | 168            | 273            | 204            | 212            |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.48                         | 0.31           | 0.39           | 0.41           | 0.38           | 0.36           | 0.64           | 0.44           | 0.53           | 0.24           | 0.30           | 0.34           |
| A/CNK                              | 0.74                         | 0.84           | 0.76           | 0.77           | 0.80           | 0.73           | 0.73           | 0.76           | 0.78           | 0.73           | 0.74           | 0.69           |
| FeO*/MgO                           | 2.09                         | 2.31           | 1.51           | 1.76           | 1.36           | 2.16           | 1.81           | 2.05           | 1.76           | 1.54           | 2.40           | 1.48           |

| rock body                          | Tanoura Igneous Complex(TIC) |                |                |                  |                          |                       |                            |                        |            |                   |           |           |
|------------------------------------|------------------------------|----------------|----------------|------------------|--------------------------|-----------------------|----------------------------|------------------------|------------|-------------------|-----------|-----------|
| rock type                          | Disrupted dike               | Disrupted dike | Disrupted dike | Back-veined dike | Back-veined dike         | Back-veined dike      | Back-veined dike           | Back-veined dike       | late dike  | late dike         | late dike | late dike |
| sample No.                         | HE-MD-33<br>(98061501D2)     | HE-MD-35       | HE-MD-36       | 96061001<br>MD-1 | HE-MD-17<br>contact part | HE-MD-17<br>core part | HE-MD-19-D<br>(mafic part) | HE-MD-19-D<br>19Hybrid | 960611MD-4 | 96061202<br>MD-10 | 97052901D | HE-MD-10  |
| SiO <sub>2</sub> (wt%)             | 61.84                        | 55.10          | 58.97          | 51.97            | 49.29                    | 52.91                 | 53.99                      | 70.44                  | 50.83      | 52.28             | 58.08     | 50.91     |
| TiO <sub>2</sub>                   | 1.24                         | 1.56           | 1.01           | 0.90             | 1.48                     | 1.26                  | 1.05                       | 0.42                   | 1.10       | 1.55              | 1.20      | 1.33      |
| Al <sub>2</sub> O <sub>3</sub>     | 16.23                        | 17.02          | 16.91          | 18.06            | 17.37                    | 16.79                 | 17.14                      | 16.10                  | 17.84      | 18.04             | 17.13     | 19.00     |
| Fe <sub>2</sub> O <sub>3</sub>     | 7.73                         | 10.66          | 7.93           | 9.44             | 12.02                    | 9.94                  | 9.48                       | 3.63                   | 10.28      | 10.92             | 8.40      | 9.68      |
| MnO                                | 0.14                         | 0.20           | 0.14           | 0.16             | 0.23                     | 0.17                  | 0.18                       | 0.06                   | 0.18       | 0.19              | 0.15      | 0.18      |
| MgO                                | 2.18                         | 2.84           | 2.72           | 6.32             | 5.21                     | 5.21                  | 5.04                       | 1.19                   | 6.04       | 4.30              | 3.20      | 4.74      |
| CaO                                | 5.48                         | 7.26           | 6.91           | 9.27             | 9.42                     | 9.34                  | 9.01                       | 3.01                   | 9.89       | 8.91              | 6.99      | 10.15     |
| Na <sub>2</sub> O                  | 3.48                         | 3.83           | 3.67           | 2.54             | 3.1                      | 2.87                  | 2.70                       | 2.87                   | 2.44       | 3.08              | 3.15      | 2.75      |
| K <sub>2</sub> O                   | 1.44                         | 1.16           | 1.50           | 1.20             | 1.61                     | 1.31                  | 1.22                       | 2.18                   | 1.26       | 0.43              | 1.51      | 0.97      |
| P <sub>2</sub> O <sub>5</sub>      | 0.26                         | 0.38           | 0.24           | 0.15             | 0.27                     | 0.20                  | 0.21                       | 0.09                   | 0.16       | 0.29              | 0.21      | 0.29      |
| total                              | 100.02                       | 100.01         | 100.00         | 100.01           | 100.00                   | 100.00                | 100.02                     | 99.99                  | 100.02     | 99.99             | 100.02    | 100.00    |
| Ti(in ppm)                         | 7434                         | 9352           | 6055           | 5396             | 8873                     | 7554                  | 6295                       | 2518                   | 6595       | 9292              | 7194      | 7973      |
| P(in ppm)                          | 1134                         | 1657           | 1047           | 654              | 1177                     | 872                   | 916                        | 392                    | 698        | 1265              | 916       | 1265      |
| K(in ppm)                          | 11953                        | 9629           | 12452          | 9961             | 13365                    | 10874                 | 10127                      | 18096                  | 10459      | 13669             | 12535     | 8052      |
| Ce                                 | 41.4                         | 43.5           | 39.3           | 36.6             | 38.3                     | 27.4                  | 23.7                       | 33.8                   | 19.4       | 38.8              | 36.4      | 35.1      |
| Cr                                 | 9.0                          | 8.8            | 26.8           | 102              | 67.0                     | 90.7                  | 168                        | 28.4                   | 161        | 25.5              | 20.5      | 93.9      |
| Nb                                 | 8.22                         | 9.04           | 7.54           | 4.56             | 7.57                     | 5.43                  | 5.87                       | 7.90                   | 3.83       | 6.94              | 7.03      | 6.64      |
| Ni                                 | tr                           | tr             | tr             | 28.4             | 10.8                     | 10.3                  | 13.7                       | tr                     | 10.4       | tr                | tr        | 8.0       |
| Pb                                 | 10.5                         | 8.0            | 6.8            | 5.4              | 9.2                      | 7.4                   | 5.9                        | 13.6                   | 5.6        | 7.0               | 10.8      | 10.8      |
| Rb                                 | 67.7                         | 42.6           | 61.6           | 45.8             | 56.4                     | 40.6                  | 45.3                       | 70.4                   | 42.5       | 12.3              | 46.3      | 48.7      |
| Sr                                 | 358                          | 406            | 367            | 344              | 325                      | 364                   | 349                        | 236                    | 335        | 435               | 349       | 434       |
| Th                                 | 3.49                         | 3.20           | 4.51           | 2.32             | 0.83                     | 1.91                  | 2.86                       | 9.67                   | 1.45       | 0.48              | 5.11      | 1.16      |
| Y                                  | 19.9                         | 19.9           | 19.4           | 16.9             | 20.1                     | 17.6                  | 18.0                       | 20.6                   | 17.1       | 17.4              | 19.2      | 18.3      |
| Zr                                 | 127                          | 122            | 112            | 69               | 102                      | 83                    | 84                         | 116                    | 62         | 98                | 135       | 102       |
| Ba                                 | 379                          | 240            | 341            | 280              | 312                      | 225                   | 241                        | 624                    | 280        | 142               | 382       | 227       |
| Ti/Zr                              | 58.6                         | 76.4           | 54.3           | 77.7             | 87.4                     | 91.1                  | 74.6                       | 21.6                   | 106        | 94.6              | 53.5      | 78.3      |
| Ti/Y                               | 374                          | 470            | 312            | 319              | 441                      | 429                   | 350                        | 122                    | 386        | 534               | 375       | 436       |
| Zr/Y                               | 6.37                         | 6.15           | 5.75           | 4.11             | 5.05                     | 4.71                  | 4.69                       | 5.65                   | 3.64       | 5.64              | 7.01      | 5.56      |
| Nb/Y                               | 0.41                         | 0.45           | 0.39           | 0.27             | 0.38                     | 0.31                  | 0.33                       | 0.38                   | 0.22       | 0.40              | 0.37      | 0.36      |
| Ce/Th                              | 11.9                         | 13.6           | 8.7            | 15.8             | 46.1                     | 14.3                  | 8.3                        | 3.5                    | 13.4       | 80.8              | 7.1       | 30.3      |
| Rb/Zr                              | 0.53                         | 0.35           | 0.55           | 0.66             | 0.56                     | 0.49                  | 0.54                       | 0.60                   | 0.68       | 0.13              | 0.34      | 0.48      |
| Zr/Th                              | 36.3                         | 38.3           | 24.7           | 29.9             | 122                      | 43.4                  | 29.5                       | 12.0                   | 43.0       | 204.6             | 26.3      | 87.8      |
| Ce/Pb                              | 3.9                          | 5.4            | 5.8            | 6.8              | 4.2                      | 3.7                   | 4.0                        | 2.5                    | 3.5        | 5.5               | 3.4       | 3.3       |
| Ce/Nb                              | 5.0                          | 4.8            | 5.2            | 8.0              | 5.1                      | 5.0                   | 4.0                        | 4.3                    | 5.1        | 5.6               | 5.2       | 5.3       |
| Th/Nb                              | 0.42                         | 0.35           | 0.60           | 0.51             | 0.11                     | 0.35                  | 0.49                       | 1.22                   | 0.38       | 0.07              | 0.73      | 0.17      |
| Th/Y                               | 0.18                         | 0.16           | 0.23           | 0.14             | 0.04                     | 0.11                  | 0.16                       | 0.47                   | 0.08       | 0.03              | 0.27      | 0.06      |
| Ba/Ce                              | 9.15                         | 5.52           | 8.68           | 7.65             | 8.15                     | 8.21                  | 10.17                      | 18.46                  | 14.43      | 3.66              | 10.49     | 6.47      |
| K/Rb                               | 177                          | 226            | 202            | 217              | 237                      | 268                   | 224                        | 257                    | 246        | 290               | 271       | 165       |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.41                         | 0.30           | 0.41           | 0.47             | 0.52                     | 0.46                  | 0.45                       | 0.76                   | 0.52       | 0.14              | 0.48      | 0.35      |
| A/CNK                              | 0.94                         | 0.82           | 0.84           | 0.81             | 0.72                     | 0.73                  | 0.77                       | 1.28                   | 0.76       | 0.83              | 0.88      | 0.79      |
| FeO*/MgO                           | 3.16                         | 3.34           | 2.59           | 1.33             | 2.05                     | 1.70                  | 1.67                       | 2.71                   | 1.51       | 2.26              | 2.34      | 1.82      |

表 2 全岩化学組成一覽表 (5)  
Table 2 Bulk chemical compositions (5)

| rock body                          | Tanoura Igneous Complex(TIC) |                       |           |                      |                      |                      |                      |                      | sampling locality                  | Northwest of shodoshima(Oe) |          | Eastcoast of shodoshima (Tachibana) |                |                  |
|------------------------------------|------------------------------|-----------------------|-----------|----------------------|----------------------|----------------------|----------------------|----------------------|------------------------------------|-----------------------------|----------|-------------------------------------|----------------|------------------|
|                                    | late dike                    | late dike             | late dike | Late dike (andesite) | Late dike (andesite) | Late dike (andesite) | Late dike (andesite) | Late dike (andesite) |                                    | sediment                    | sediment | pelitic schist                      | pelitic schist | psammitic schist |
| sample No.                         | HE-MD-18                     | HE-MD-34 (98061501D1) | HE-MD-37  | 96090302 -01D-2      | 96090302 -01D-3      | 96090304-05          | 97052902-D           | HE-MD-1              | sample No.                         | S-1                         | S-2      | R-P-1                               | R-P-2          | R-S-1            |
| SiO <sub>2</sub> (wt%)             | 58.99                        | 53.62                 | 56.11     | 60.46                | 65.52                | 67.42                | 66.45                | 62.39                | SiO <sub>2</sub> (wt%)             | —                           | —        | —                                   | —              | —                |
| TiO <sub>2</sub>                   | 0.97                         | 0.92                  | 0.68      | 1.19                 | 0.67                 | 0.61                 | 0.46                 | 0.63                 | TiO <sub>2</sub>                   | —                           | —        | —                                   | —              | —                |
| Al <sub>2</sub> O <sub>3</sub>     | 16.76                        | 19.11                 | 18.03     | 15.71                | 14.95                | 15.54                | 16.14                | 16.76                | Al <sub>2</sub> O <sub>3</sub>     | —                           | —        | —                                   | —              | —                |
| Fe <sub>2</sub> O <sub>3</sub>     | 8.17                         | 8.54                  | 7.36      | 9.23                 | 7.33                 | 6.50                 | 6.01                 | 6.38                 | Fe <sub>2</sub> O <sub>3</sub>     | —                           | —        | —                                   | —              | —                |
| MnO                                | 0.14                         | 0.17                  | 0.12      | 0.14                 | 0.11                 | 0.10                 | 0.10                 | 0.11                 | MnO                                | —                           | —        | —                                   | —              | —                |
| MgO                                | 3.28                         | 3.93                  | 5.17      | 1.75                 | 0.84                 | 0.74                 | 0.66                 | 2.77                 | MgO                                | —                           | —        | —                                   | —              | —                |
| CaO                                | 6.52                         | 9.8                   | 8.86      | 5.69                 | 3.94                 | 3.32                 | 3.61                 | 5.30                 | CaO                                | —                           | —        | —                                   | —              | —                |
| Na <sub>2</sub> O                  | 3.18                         | 2.9                   | 2.47      | 3.73                 | 4.10                 | 3.55                 | 4.16                 | 3.31                 | Na <sub>2</sub> O                  | —                           | —        | —                                   | —              | —                |
| K <sub>2</sub> O                   | 1.77                         | 0.84                  | 1.10      | 1.64                 | 2.31                 | 2.01                 | 2.27                 | 2.19                 | K <sub>2</sub> O                   | —                           | —        | —                                   | —              | —                |
| P <sub>2</sub> O <sub>5</sub>      | 0.22                         | 0.17                  | 0.11      | 0.47                 | 0.21                 | 0.19                 | 0.13                 | 0.16                 | P <sub>2</sub> O <sub>5</sub>      | —                           | —        | —                                   | —              | —                |
| total                              | 100.00                       | 100.00                | 100.01    | 100.01               | 99.98                | 99.98                | 99.99                | 100.00               | total                              | 0.00                        | 0.00     | 0.00                                | 0.00           | 0.00             |
| Ti(in ppm)                         | 5815                         | 5515                  | 4077      | 7134                 | 4017                 | 3657                 | 2757.7               | 3776.9               | Ti(in ppm)                         | —                           | —        | —                                   | —              | —                |
| P(in ppm)                          | 959                          | 741                   | 480       | 2050                 | 916                  | 829                  | 566.9                | 697.8                | P(in ppm)                          | —                           | —        | —                                   | —              | —                |
| K(in ppm)                          | 14693                        | 6973                  | 9131      | 13614                | 19175                | 16685                | 18843.3              | 18179.2              | K(in ppm)                          | —                           | —        | —                                   | —              | —                |
| Ce                                 | 40.4                         | 26.9                  | 17.8      | 53.2                 | 61.0                 | 63.5                 | 41.8                 | 48.5                 | Ce                                 | 44.2                        | 40       | 72.8                                | 64.8           | 6.1              |
| Cr                                 | 23.9                         | 67.6                  | 98.3      | 9.1                  | 4.8                  | 5.61                 | tr                   | 21.5                 | Cr                                 | 48.5                        | 162      | 207                                 | 247            | 4.1              |
| Nb                                 | 8.21                         | 4.87                  | 4.42      | 9.78                 | 11.04                | 10.52                | 8.72                 | 8.02                 | Nb                                 | 8.16                        | 7.21     | 31.52                               | 23.65          | 2.08             |
| Ni                                 | 5.5                          | tr                    | 12.5      | tr                   | tr                   | tr                   | tr                   | 6.9                  | Ni                                 | 18.3                        | 77.7     | 153.8                               | 183.7          | tr               |
| Pb                                 | 7.4                          | 5.0                   | 1.5       | 13.9                 | 16.7                 | 16.7                 | 18.7                 | 15.8                 | Pb                                 | 18.6                        | 51.4     | 8.8                                 | 6.3            | 34.2             |
| Rb                                 | 60.6                         | 30.2                  | 34.1      | 51.8                 | 71.8                 | 59.7                 | 59.5                 | 78.1                 | Rb                                 | 92.9                        | 126      | 90.3                                | 50.3           | 97.1             |
| Sr                                 | 342                          | 369                   | 329       | 348                  | 297                  | 290                  | 323.7                | 315.9                | Sr                                 | 179                         | 157      | 595                                 | 527            | 243              |
| Th                                 | 6.16                         | 3.49                  | 5.27      | 4.91                 | 8.00                 | 8.44                 | 8.26                 | 8.12                 | Th                                 | 9.03                        | 7.55     | 6.38                                | 3.91           | 5.19             |
| Y                                  | 20.4                         | 17.6                  | 16.5      | 22.1                 | 24.0                 | 23.7                 | 22.7                 | 21.5                 | Y                                  | 24.2                        | 24.2     | 20.0                                | 17.8           | 16.1             |
| Zr                                 | 145                          | 84                    | 86        | 166                  | 215                  | 225                  | 192.5                | 155.3                | Zr                                 | 176                         | 169      | 257                                 | 224            | 27.2             |
| Ba                                 | 421                          | 197                   | 300       | 400                  | 544                  | 538                  | 626                  | 559                  | Ba                                 | 351                         | 536      | 698                                 | 643            | 704              |
| Ti/Zr                              | 40.2                         | 65.7                  | 47.4      | 43.1                 | 18.7                 | 16.3                 | 14.3                 | 24.3                 | Ti/Zr                              | —                           | —        | —                                   | —              | —                |
| Ti/Y                               | 285                          | 313                   | 247       | 323                  | 167                  | 154.3                | 121.5                | 175.7                | Ti/Y                               | —                           | —        | —                                   | —              | —                |
| Zr/Y                               | 7.08                         | 4.77                  | 5.21      | 7.49                 | 8.95                 | 9.48                 | 8.48                 | 7.22                 | Zr/Y                               | 7.29                        | 6.98     | 12.87                               | 12.58          | 1.69             |
| Nb/Y                               | 0.40                         | 0.28                  | 0.27      | 0.44                 | 0.46                 | 0.44                 | 0.38                 | 0.37                 | Nb/Y                               | 0.34                        | 0.30     | 1.58                                | 1.33           | 0.13             |
| Ce/Th                              | 6.6                          | 7.7                   | 3.4       | 10.8                 | 7.6                  | 7.5                  | 5.1                  | 6.0                  | Ce/Th                              | 4.9                         | 5.3      | 11.4                                | 16.6           | 1.2              |
| Rb/Zr                              | 0.42                         | 0.36                  | 0.40      | 0.31                 | 0.33                 | 0.27                 | 0.31                 | 0.50                 | Rb/Zr                              | 0.53                        | 0.75     | 0.35                                | 0.22           | 3.57             |
| Zr/Th                              | 23.5                         | 24.0                  | 16.3      | 33.7                 | 26.9                 | 26.6                 | 23.3                 | 19.1                 | Zr/Th                              | 19.5                        | 22.4     | 40.3                                | 57.3           | 5.2              |
| Ce/Pb                              | 5.5                          | 5.4                   | 11.9      | 3.8                  | 3.7                  | 3.8                  | 2.2                  | 3.1                  | Ce/Pb                              | 2.4                         | 0.8      | 8.3                                 | 10.3           | 0.2              |
| Ce/Nb                              | 4.9                          | 5.5                   | 4.0       | 5.4                  | 5.5                  | 6.0                  | 4.8                  | 6.0                  | Ce/Nb                              | 5.4                         | 5.5      | 2.3                                 | 2.7            | 2.9              |
| Th/Nb                              | 0.75                         | 0.72                  | 1.19      | 0.50                 | 0.72                 | 0.80                 | 0.95                 | 1.01                 | Th/Nb                              | 1.11                        | 1.05     | 0.20                                | 0.17           | 2.50             |
| Th/Y                               | 0.30                         | 0.20                  | 0.32      | 0.22                 | 0.33                 | 0.36                 | 0.36                 | 0.38                 | Th/Y                               | 0.37                        | 0.31     | 0.32                                | 0.22           | 0.32             |
| Ba/Ce                              | 10.42                        | 7.32                  | 16.85     | 7.52                 | 8.92                 | 8.47                 | 14.98                | 11.53                | Ba/Ce                              | 7.94                        | 13.40    | 9.59                                | 9.92           | 115              |
| K/Rb                               | 242                          | 231                   | 268       | 263                  | 267                  | 279.5                | 316.7                | 232.8                | K/Rb                               | —                           | —        | —                                   | —              | —                |
| K <sub>2</sub> O/Na <sub>2</sub> O | 0.56                         | 0.29                  | 0.45      | 0.44                 | 0.56                 | 0.57                 | 0.55                 | 0.66                 | K <sub>2</sub> O/Na <sub>2</sub> O | —                           | —        | —                                   | —              | —                |
| A/CNK                              | 0.88                         | 0.81                  | 0.84      | 0.86                 | 0.91                 | 1.11                 | 1.02                 | 0.96                 | A/CNK                              | —                           | —        | —                                   | —              | —                |
| FeO*/MgO                           | 2.22                         | 1.93                  | 1.27      | 4.69                 | 7.77                 | 7.82                 | 8.10                 | 2.05                 | FeO*/MgO                           | —                           | —        | —                                   | —              | —                |

表 3 サンプル採集地点一覧表  
Table 3 Sampling point

| rock body           |           | Shodoshima granite            |                          |                      |                         |                        |                              |                           |                      |                |                             |                |                |                  |                                     |  |  |
|---------------------|-----------|-------------------------------|--------------------------|----------------------|-------------------------|------------------------|------------------------------|---------------------------|----------------------|----------------|-----------------------------|----------------|----------------|------------------|-------------------------------------|--|--|
| rock type           |           | Fujisaki-type                 |                          |                      | Atehamaya-type          |                        |                              | Nadayama-type             |                      | Fukuda-type    |                             |                |                |                  |                                     |  |  |
| sample No.          |           | 9608260101                    | 9608260601               | 97052905-02          | 9611170104              | 98112906               | 98112906 MME                 | 98113001                  | 98113002-01          | 98112905       | 98112908                    |                |                |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°33'43.3"N                  | 34°33'42.9"N             | 34°33'43.5"N         | 34°31'58.0"N            | 34°31'55.6"N           | 34°31'55.8"N                 | 34°33'43.2"N              | 34°33'46.4"N         | 34°31'37.6"N   | 34°31'58.1"N                |                |                |                  |                                     |  |  |
|                     | Longitude | 134°21'03.2"E                 | 134°21'02.9"E            | 134°21'03.2"E        | 134°21'23.5"E           | 134°21'24.3"E          | 134°21'24.1"E                | 134°19'43.4"E             | 134°19'49.0"E        | 134°21'13.8"E  | 134°20'17.8"E               |                |                |                  |                                     |  |  |
| rock body           |           | Yoshinogranite                |                          |                      |                         |                        |                              |                           | Nanpudai granite     |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | Yoshino-type                  |                          |                      | Ushigaura-type          |                        |                              |                           | Nanpudai-type        |                |                             |                |                |                  |                                     |  |  |
| sample No.          |           | 98120403                      | 98120504                 | 97052902-01H         | 96111303-01             | 98120301               | 98120502                     | 9705290301                | 98120506             | 97052904       |                             |                |                |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°26'04.5"N                  | 34°28'07.9"N             | 34°28'09.1"N         | 34°27'46.4"N            | 34°27'56.9"N           | 34°28'51.9"N                 | 34°28'31.0"N              | 34°29'41.6"N         | 34°29'28.7"N   |                             |                |                |                  |                                     |  |  |
|                     | Longitude | 134°15'02.3"E                 | 134°21'05.0"E            | 134°21'06.8"E        | 134°18'25.6"E           | 134°16'00.8"E          | 134°20'49.7"E                | 134°21'10.1"E             | 134°21'02.7"E        | 134°20'57.1"E  |                             |                |                |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex (TIC) |                          |                      |                         |                        |                              |                           |                      |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | Granite                       | Granite                  | Granite              | Granodiorite            | Granodiorite           | Tonalite                     | Tonalite                  | Tonalite             | Tonalite       | Diorite                     | Diorite        |                |                  |                                     |  |  |
| sample No.          |           | 970528Gr                      | 98061701Gr               | 98061702             | 9611220102              | 9611220302             | 9611210301                   | 9611220103                | 970528To             | 98061703       | 9611200101                  | 970528Qd       |                |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°27'22.7"N                  | 34°27'00.9"N             | 34°27'02.1"N         | 34°27'00.8"N            | 34°27'01.3"N           | 34°27'13.2"N                 | 34°27'22.7"N              | 34°27'05.4"N         | 34°26'56.9"N   | 34°27'22.0"N                | 34°27'22.7"N   |                |                  |                                     |  |  |
|                     | Longitude | 134°18'22.5"E                 | 134°17'47.7"E            | 134°17'50.2"E        | 134°17'49.1"E           | 134°17'50.4"E          | 134°17'59.9"E                | 134°19'48.2"E             | 134°17'55.7"E        | 134°17'43.7"E  | 134°18'00.2"E               | 134°18'22.5"E  |                |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex (TIC) |                          |                      |                         |                        | Tanoura Igneous Complex(TIC) |                           |                      |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | Gabbro                        | Gabbro                   | Gabbro               | Gabbro                  | Contact part (Gr-Di)   | MME                          | MME                       | MME                  | MME            | MME                         | MME            | MME            |                  |                                     |  |  |
| sample No.          |           | 9608300202                    | 9608300203               | 98061201             | 98061202                | 9611200105             | 96060402-1MME                | 96090304-05               | 9611210302           | 9611220107     | 97052701-02                 | 98061502-M2    | 98061704       |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°26'00.1"N                  | 34°25'59.9"N             | 34°26'49.3"N         | 34°26'48.7"N            | 34°27'20.7"N           | 34°27'22.0"N                 | 34°26'28.9"N              | 34°27'06.1"N         | 34°27'01.0"N   | 34°27'22.7"N                | 34°27'03.7"N   | 34°27'01.3"N   |                  |                                     |  |  |
|                     | Longitude | 134°20'15.9"E                 | 134°20'15.5"E            | 134°17'22.7"E        | 134°17'19.9"E           | 134°17'59.4"E          | 134°17'59.9"E                | 134°19'48.2"E             | 134°17'56.4"E        | 134°17'49.2"E  | 134°18'22.5"E               | 134°17'53.9"E  | 134°17'52.4"E  |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex(TIC)  |                          |                      |                         |                        |                              |                           |                      |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | xenophyritic MME              | xenophyritic MME         | xenophyritic MME     | xenophyritic MME        | xenophyritic MME       | MME (microdiorite)           | MME (microdiorite)        | MME (microdiorite)   | Enclaves dike  | Enclaves dike               | Enclaves dike  | Enclaves dike  |                  |                                     |  |  |
| sample No.          |           | 9611210102                    | 9611210303               | 9611220104           | 96060602                | 9611200104             | 960611-2                     | 9611200103                | 9611220105           | 96061201MD-7   | 96061201MD-9                | 96061204MD-15  | HE-MD-3        |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°27'18.3"N                  | 34°27'13.3"N             | 34°27'01.3"N         | 34°27'20.0"N            | 34°27'22.8"N           | 34°27'18.9"N                 | 34°27'16.9"N              | 34°27'00.8"N         | 34°27'09.3"N   | 34°27'08.6"N                | 34°27'07.2"N   | 34°27'18.3"N   |                  |                                     |  |  |
|                     | Longitude | 134°17'59.3"E                 | 134°17'58.5"E            | 134°17'50.9"E        | 134°17'59.1"E           | 134°18'22.5"E          | 134°17'59.0"E                | 134°17'59.2"E             | 134°17'48.5"E        | 134°17'57.6"E  | 134°17'57.3"E               | 134°17'57.0"E  | 134°17'59.1"E  |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex(TIC)  |                          |                      |                         |                        |                              |                           |                      |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | Composite dike                | Composite dike           | Composite dike       | Composite dike          | Composite dike         | Composite dike               | Composite dike            | Disrupted dike       | Disrupted dike | Disrupted dike              | Disrupted dike | Disrupted dike |                  |                                     |  |  |
| sample No.          |           | HE-MD-8 (mafic part)          | HE-MD-8-9F (felsic part) | HE-MD-9 (mafic part) | HE-MD-22-D (mafic part) | HE-MD-22Hybrid         | 98061203 (mafic part)        | 98061204 (tonalitic part) | 96061102 Mafic       | 96061201 MD-8  | 9611210201                  | 9611210305     | 97052802-01    |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°26'59.3"N                  | 34°26'59.5"N             | 34°26'59.3"N         | 34°26'57.3"N            | 34°26'57.2"N           | 34°26'48.7"N                 | 34°26'48.7"N              | 34°27'18.5"N         | 34°27'15.8"N   | 34°27'14.9"N                | 34°27'14.8"N   | 34°27'22.7"N   |                  |                                     |  |  |
|                     | Longitude | 134°17'46.8"E                 | 134°17'47.1"E            | 134°18'00.1"E        | 134°17'44.0"E           | 134°17'44.1"E          | 134°17'31.5"E                | 134°17'31.3"E             | 134°17'59.0"E        | 134°17'60.0"E  | 134°17'59.7"E               | 134°17'59.5"E  | 134°18'22.5"E  |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex(TIC)  |                          |                      |                         |                        |                              |                           |                      |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | Disrupted dike                | Disrupted dike           | Disrupted dike       | Disrupted dike          | Disrupted dike         | Disrupted dike               | Disrupted dike            | Disrupted dike       | Disrupted dike | Disrupted dike              | Disrupted dike | Disrupted dike |                  |                                     |  |  |
| sample No.          |           | HE-MD-2                       | HE-MD-4                  | HE-MD-5              | HE-MD-6                 | HE-MD-7                | HE-MD-11                     | HE-MD-16-D                | HE-MD-20             | HE-MD-21       | HE-MD-23                    | HE-MD-31       | HE-MD-32       |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°27'00.1"N                  | 34°27'00.0"N             | 34°26'59.7"N         | 34°26'59.9"N            | 34°26'59.8"N           | 34°26'59.3"N                 | 34°26'58.7"N              | 34°26'57.6"N         | 34°26'57.6"N   | 34°26'57.3"N                | 34°26'56.4"N   | 34°26'56.4"N   |                  |                                     |  |  |
|                     | Longitude | 134°17'48.1"E                 | 134°17'47.9"E            | 134°17'47.4"E        | 134°17'47.7"E           | 134°17'47.9"E          | 134°17'47.4"E                | 134°17'44.9"E             | 134°17'44.1"E        | 134°17'44.2"E  | 134°17'43.9"E               | 134°17'42.2"E  | 134°17'43.4"E  |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex(TIC)  |                          |                      |                         |                        |                              |                           |                      |                |                             |                |                |                  |                                     |  |  |
| rock type           |           | Disrupted dike                | Disrupted dike           | Disrupted dike       | Back-veined dike        | Back-veined dike       | Back-veined dike             | Back-veined dike          | Back-veined dike     | late dike      | late dike                   | late dike      | late dike      |                  |                                     |  |  |
| sample No.          |           | HE-MD-33 (98061501D2)         | HE-MD-35                 | HE-MD-36             | 96061001 MD-1           | HE-MD-17 contact poart | HE-MD-17 core part           | HE-MD-19-D (mafic part)   | HE-MD-19Hybrid       | 960611MD-4     | 96061202 MD-10              | 97052901D      | HE-MD-10       |                  |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°26'58.2"N                  | 34°26'55.9"N             | 34°26'55.7"N         | 34°26'28.3"N            | 34°26'27.1"N           | 34°26'26.5"N                 | 34°27'22.7"N              | 34°26'59.0"N         | 34°27'18.2"N   | 34°27'08.6"N                | 34°27'22.7"N   | 34°26'59.4"N   |                  |                                     |  |  |
|                     | Longitude | 134°17'44.2"E                 | 134°17'42.2"E            | 134°17'41.8"E        | 134°19'46.9"E           | 134°19'47.2"E          | 134°19'47.4"E                | 134°18'22.5"E             | 134°17'48.1"E        | 134°17'58.9"E  | 134°17'58.5"E               | 134°18'22.5"E  | 134°17'47.5"E  |                  |                                     |  |  |
| rock body           |           | Tanoura Igneous Complex(TIC)  |                          |                      |                         |                        |                              |                           | sampling locality    |                | Northwest of shodoshima(Oe) |                |                |                  | Eastcoast of shodoshima (Tachibana) |  |  |
| rock type           |           | late dike                     | late dike                | late dike            | Late dike (andesite)    | Late dike (andesite)   | Late dike (andesite)         | Late dike (andesite)      | Late dike (andesite) | sediment       | sediment                    | pelitic schist | pelitic schist | psammitic schist |                                     |  |  |
| sample No.          |           | HE-MD-18                      | HE-MD-34 (98061501D1)    | HE-MD-37             | 96090302 -01D-2         | 96090302 -01D-3        | 96090304-05                  | 97052902-D                | HE-MD-1              | S-1            | S-2                         | R-P-1          | R-P-2          | R-S-1            |                                     |  |  |
| Sampling point(DMS) | Latitude  | 34°26'58.2"N                  | 34°26'56.2"N             | 34°26'55.8"N         | 34°26'28.3"N            | 34°26'27.1"N           | 34°26'26.5"N                 | 34°27'22.7"N              | 34°26'60.0"N         | 34°31'42.7"N   | 34°31'36.2"N                | 34°29'12.1"N   | 34°29'10.2"N   | 34°29'10.0"N     |                                     |  |  |
|                     | Longitude | 134°17'44.2"E                 | 134°17'42.5"E            | 134°17'41.7"E        | 134°19'46.9"E           | 134°19'47.2"E          | 134°19'47.4"E                | 134°18'22.5"E             | 134°17'48.1"E        | 134°10'22.2"E  | 134°10'17.8"E               | 134°20'37.0"E  | 134°20'37.0"E  | 134°20'36.9"E    |                                     |  |  |