**Open file 1**

**Petrography of analyzed samples**

**KAKUDA7 (medium-grained foliated hornblende biotite tonalite)**

Locality: quarry east of the Takasetoge Pass, 37° 56′ 18:3′ ′ N, 140° 51′ 23:3′ ′ E.

This rock is medium grained hornblende biotite tonalite and shows hipidiomorphic granular texture and partly mylonitized. It consists of plagioclase (65.2 %), quartz (25.8 %), biotite (5.6 %), hornblende (1.2 %), and K-feldspar (0.4 %) with minor amounts of opaque minerals, titanite, chlorite, epidote, and zircon. Plagioclase (0.5-2 mm) is euhedral to subhedral, and frequently shows albite, carlsbad, and rarely pericline twins with weak normal zoning. The plagioclase crystals are sometimes broken, and the fractures are filled by quartz and minor epidote. In rare cases, the plagioclase shows weak internal kinking and folding of albite lamellae. Quartz occurs as granular grains (0.1-1 mm) with undulose extinction and is sometimes recrystallized to a polygonal granoblastic aggregate. Biotite (0.1-1 mm) occurs as interstitial crystal and frequently recrystallized to fine grained aggregate. Hornblende (0.2-1 mm) is subhedral crystal and rarely replaced by biotite around margin or clack of the crystal. Biotite and hornblende are occasionally altered to chlorite. K-feldspar rarely occurs as interstitial crystal with perthite.

**KAKUDA9 (medium-grained foliated hornblende biotite tonalite)**

Locality: quarry east of the Takasetoge Pass, 37° 56′ 18:0′ ′ N, 140° 51′ 23:2′ ′ E.

This rock is medium grained hornblende biotite tonalite and shows hipidiomorphic granular texture and partly mylonitized. It consists of plagioclase (71.6 %), quartz (20.3 %), biotite (3.5 %), hornblende (1.0 %), and K-feldspar (0.2 %) with accessories of opaque minerals, titanite, chlorite, epidote, and zircon. Plagioclase (0.5-3 mm) occurs as euhedral to subhedral crystal, and shows albite, carlsbad, and rarely pericline twins with weak normal zoning. Core of the plagioclase is sometimes saussuritized. The plagioclase rarely shows weak internal kinking and folding of albite lamellae and sometimes includes fractures filled by quartz and minor epidote. Granular grains of quartz (0.1-3 mm) with undulose extinction are locally recrystallized to a polygonal granoblastic aggregate. The other features similar to those of KAKUDA 7.

**11111322 (coarse-grained foliated hornblende biotite quartz diorite)**

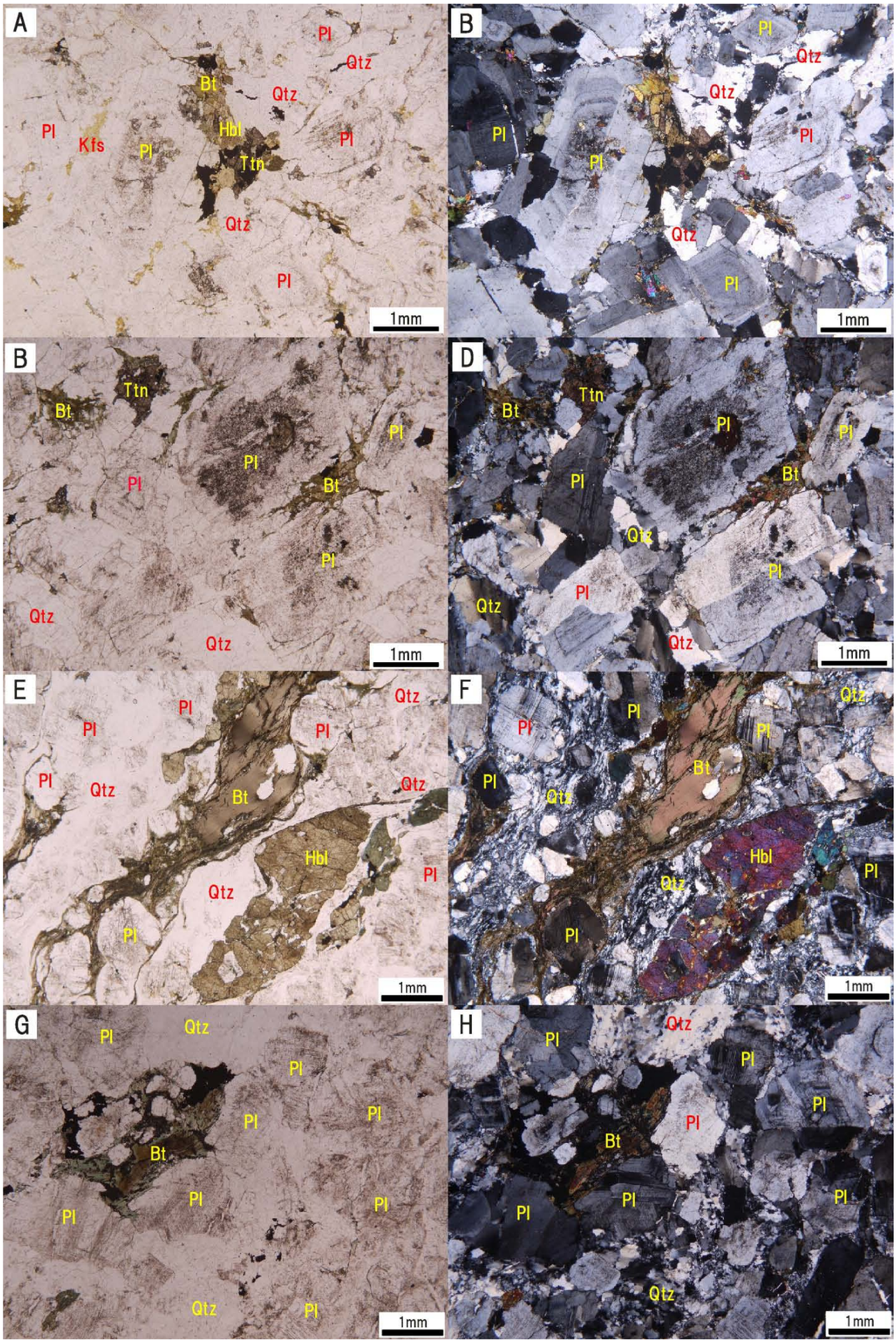
Locality: Washiashigawa River, 37° 58′ 33:1′ ′ N, 140° 51′ 25:3′ ′ E.

This rock is coarse grained hornblende biotite quartz diorite and shows mylonitized hipidiomorphic granular texture. It consists of plagioclase (66.0 %), quartz (15.6 %), biotite (7.7 %), hornblende (4.3 %), and K-feldspar (3.1 %) with minor amounts of opaque minerals, titanite, chlorite, epidote, and zircon. Plagioclase (1-4 mm) is euhedral to subhedral, and frequently shows albite, carlsbad, and pericline twins with weak normal zoning. The plagioclase crystals are sometimes broken, and the fractures are filled by quartz, epidote, and chlorite. In rare cases, the plagioclase shows weak internal kinking and folding of albite lamellae. Quartz is deformed to undulose ribbons recrystallized to granoblastic grains, and occupies the interstices. Biotite occurs as tabular crystal of 5-15mm in diameter and 0.5-1.5mm in thickness, and is arranged parallel to the mylonitic foliation. Hornblende (0.5-5 mm, 12mm in maximum) is subhedral crystal and is sometimes arranged parallel to the mylonitic foliation. K-feldspar (1mm in maximum) occurs as anhedral crystal with perthite.

**11111205 (coarse-grained foliated hornblende biotite tonalite)**

Locality: quarry northeast of the Kosaitoge Pass, 37° 54′ 52:9′ ′ N, 140° 51′ 08:6′ ′ E.

This rock is coarse grained hornblende biotite tonalite and shows hipidiomorphic granular texture and partly mylonitized. It consists of plagioclase (62.7 %), quartz (26.9 %), biotite (4.7 %), K-feldspar (2.6 %), and hornblende (1.1 %), with minor amounts of opaque minerals, titanite, chlorite, epidote, and zircon. Plagioclase (1-5 mm) is euhedral to subhedral, and frequently shows albite, carlsbad, and pericline twins with weak normal zoning. In rare cases, the plagioclase shows weak internal kinking and folding of albite lamellae. Quartz occurs as granular grains (2-10 mm) with undulose extinction and is sometimes recrystallized to a polygonal to lobate contacted granoblastic aggregate (0.05-0.5 mm). Biotite occurs as tabular crystal of 2-7mm in diameter and 0.5-1.5mmin thickness, and is arranged parallel to the mylonitic foliation. Biotite is sometimes altered to chlorite. Hornblende (0.5-5 mm) occurs as subhedral crystal. K-feldspar (1.5mm in maximum) occurs as anhedral crystal with perthite and microcline twin.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**Open file 3**

## Sampling locality

| No. | rock type | name | latitude | longitude | depth (m) |
|---|---|---|---|---|---|
| 1 | Wariyama | 73102 | 38°02′03.6″ N | 140°50′07.2″ E | |
| 2 | Wariyama | KAKUDA1 | 37°59′15.8″ N | 140°50′39.1″ E | |
| 3 | Wariyama | KAKUDA2 | 37°59′15.8″ N | 140°50′39.1″ E | |
| 4 | Wariyama | KAKUDA3 | 37°59′01.5″ N | 140°51′04.9″ E | |
| 5 | Wariyama | KAKUDA4 | 37°59′01.5″ N | 140°51′04.9″ E | |
| 6 | Wariyama | KAKUDA6 | 37°56′15.0″ N | 140°51′21.1″ E | |
| 7 | Wariyama | KAKUDA7 | 37°56′18.3″ N | 140°51′23.3″ E | |
| 8 | Wariyama | KAKUDA8 | 37°56′17.5″ N | 140°51′21.6″ E | |
| 9 | Wariyama | KAKUDA9 | 37°56′18.0″ N | 140°51′23.2″ E | |
| 10 | Wariyama | 11111213 | 37°53′58.1″ N | 140°51′44.7″ E | |
| 11 | Wariyama | 11111216 | 37°53′06.1″ N | 140°51′45.7″ E | |
| 12 | Wariyama | 11111217 | 37°53′06.4″ N | 140°51′39.3″ E | |
| 13 | Wariyama | 11111316 | 37°56′16.9″ N | 140°51′11.3″ E | |
| 14 | Wariyama | 11111325 | 37°59′55.2″ N | 140°50′43.1″ E | |
| 15 | Wariyama | 12040604 | 37°58′54.8″ N | 140°51′13.0″ E | |
| 16 | Wariyama | 12040605 | 37°58′55.0″ N | 140°51′13.5″ E | |
| 17 | Wariyama | 12040607 | 37°58′55.2″ N | 140°51′14.0″ E | |
| 18 | Wariyama | 12040615 | 37°56′57.8″ N | 140°51′05.1″ E | |
| 19 | Wariyama | 12040620 | 37°57′05.7″ N | 140°51′20.8″ E | |
| 20 | Wariyama | WR12048 | 37°58′56.1″ N | 140°51′12.1″ E | |
| 21 | Wariyama | WR12100 | 37°56′02.8″ N | 140°51′04.0″ E | |
| 22 | Takase A | 11111311 | 37°56′19.1″ N | 140°51′36.5″ E | |
| 23 | Takase A | 11111321 | 37°58′32.5″ N | 140°51′24.2″ E | |
| 24 | Takase A | 11111322 | 37°58′32.5″ N | 140°51′24.2″ E | |
| 25 | Takase A | 11111310 | 37°56′18.7″ N | 140°51′37.6″ E | |
| 26 | Takase A | 12040529 | 37°58′25.3″ N | 140°51′14.6″ E | |
| 27 | Takase A | 12040619 | 37°57′06.5″ N | 140°51′25.2″ E | |
| 28 | Takase A | WR12035 | 37°58′29.2″ N | 140°51′21.1″ E | |
| 29 | Takase A | WR12056 | 37°55′40.5″ N | 140°51′19.7″ E | |
| 30 | Takase B | 11111205 | 37°54′52.9″ N | 140°51′08.5″ E | |
| 31 | Takase B | 11111206 | 37°54′48.4″ N | 140°51′32.6″ E | |
| 32 | Takase B | 11111201 | 37°54′51.5″ N | 140°51′07.0″ E | |
| 33 | Takase B | 11111208 | 37°54′48.4″ N | 140°51′32.6″ E | |
| 34 | Takase B | WR12104 | 37°56′08.7″ N | 140°50′52.1″ E | |
| 35 | GSJ-B326 | B326-T08 | 37°20′27″ N | 140°59′05″ E | 935.9 |
| 36 | GSJ-B326 | B326-T17 | 37°20′27″ N | 140°59′05″ E | 972.4 |
| 37 | GSJ-B326 | B326-T22 | 37°20′27″ N | 140°59′05″ E | 996.9 |
| 38 | GSJ-B326 | B326-T23 | 37°20′27″ N | 140°59′05″ E | 1004.6 |