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Description of geological stations[1]

NORTHERN BLOCK

Station 2784

14 fragments (up to 2 cm) of basalts, gritstones and Fe-Mn crusts have been dredged.

1. Basalts – semirounded fragments of massive aphyric strongly altered rocks, probably, fragments of gritstones.

2. Gritstones – yellowish-brown rock consisting of small semirounded fragments (up to 1 cm) of basalts and minerals cemented by smectite-zeolite aggregate.

3. One piece (1 cm) of a Fe-Mn crust.

Station 2786

About 7 kg of rocks (sedimentary, volcanic and limestone) have been dredged.

1. Sedimentary rocks (sample 2786-1) compose about 70% of material. These are blocks (20 x 15 x 10 and 15 x 7 x 5 cm) and numerous small (up to 7 cm) semirounded fragments of greenish-gray sandstone and volcanomictic silty sandstones. Sandstones and silty sandstones are low-lithified (often scatter on drying) rocks, usually equigranular, but in some samples fragments (up to 0.5-0.7 cm) of basalts and crystals of clinopyroxene and plagioclase are observed. In general clastic material in sedimentary rocks indicates their formation due to destruction of volcanites.

2. Volcanic rocks (sample 2786-2) compose about 30% of dredged material. They are represented by small (up to 4 cm) variously rounded fragments of aphyric massive basalts from dark gray to yellowish-brown color due to varying degrees of secondary changes in them. In some samples there are pores (3-5%) filled by secondary minerals: smectite, chlorite, zeolites, albite and carbonate. In some samples there are thin veinlets of zeolite (sample 2786-2-1) or carbonate (2786-2-4).

3. Three semirounded fragments (up to 4 cm) of organogenous white limestone.

[1] Translated from Russian. *S'edin V.T. and Lelikov E.P.* (1997) Description of geological stations. In: Geological Structure of the Amirante Arc in the Indian Ocean. Vladivostok, Dal'nauka (E.P. Lelikov, Ed.). P. 32-47.

Station 2787

1. One block (25 x 20 cm) and a few small (up to 4 cm) fragments of conglomerate-gritstones have been dredged. On the top the block has a round shape and covered with a thin (up to 2 mm) Fe-Mn crust. One side of the block has a fresh cleavage, as a likely place of breakaway from an indigenous outcrop. Conglomerate-gritstones are low-lithified friable fine-middle pebbled rocks with bad sorting of greenish-brownish-gray colored clastic material. The fragments are gravel-pebbled and psammite sized. The former compose 60-65% of rock volume and are comprise of rounded and semirounded fragments of variously altered basalts (80-90%), less limestone and volcanic glass. Basalt pebbles (0.5-3.0 cm, less 3-5 and up to 10 cm) have dark gray, brown and greenish-gray, calcareous-white, yellow and pink colors. Gravel-pebbly fragments are cemented by more fine-grained coarse-grained psammitic material composing up to 40% of rock volume. Psammitic material is a product finer destruction and re-deposition of basalts and limestones. Clasts of them comprise of rounded fragments of aphyric basalts and volcanic glass, rarely of limestones and minerals: pyroxene and plagioclase. All clasts are cemented by carbonate-smectite material. Cement is of contact- and pore filling type.

Station 2790

6 fragments of volcanomictic silty sandstones and limestones have been dredged.

1. Silty sandstones comprise of semirounded greenish-brownish-gray fragments, partly coated with Fe-Mn film. One piece (sample 2790-1-1) is 10 x 8 x 6 cm size, three – smaller than 3 cm. These are is low-lithified friable rocks, similar to the silty sandstones from Station 2786.

2. Two carbonate fragments of about 4 cm size, coated with Fe-Mn film (sample 2790-2). One of the samples (2790-2-1) is an aggregate of white with massive and friable parts. The second sample (2790-2-2) is probably gritstone, in which detrital material is cemented by carbonate.

3. Sporadic (no more than 10%) fragments (up to 1.5 cm) are high-altered massive aphyric basalts of yellow-brown color.

Station 2791

About 5 kg of basalts, sedimentary rocks and mineral pieces have been dredged.

1. Basalts (sample 2791-1) arte small pieces (up to 6 cm) of light gray or yellowish-brown color highly altered sometimes up to friable condition. In some fragments there is shelly jointing (sample 2791-1-1). Aphyric basalts are massive or low-porous. In

some pores there is carbonate.

2. Sedimentary rocks (sample 2791-2) – poorly sorted gravelly sandstones compose 25-30% of the dredged material. They are of white-yellow, yellow-brown and yellow-green color, friable, partially covered with Fe-Mn film. Gravelly clastic material composes no more than 10-15% of rock volume and comprise of angularly-semirounded fragments of massive aphyric basalts up to 1.5 cm size; psammitic material comprises of fragments of basalts, volcanic glass and minerals (plagioclase, pyroxene) typical for basalt. Cementing mass is composed of a smectite-zeolite aggregate.

3. Mineral fragments (sample 2791-3) are 3 small (up to 2 cm) ones consisting of a calcite aggregate (dominates), smectite and zeolite.

Station 2792

Approximately 5 kg of small fragments (up to 6 cm) of volcanic and sedimentary rocks have been dredged.

1. Volcanic rocks (sample 2792-1) dominate and comprise of semirounded (or angular) fragments of basalts and sporadic fragments of volcanic glass (sample 2792-1-2). Basalts have different colors from dark gray (samples 2792-1-4, 2792-1-8) to yellowish-brown (sample 2792-1-2) due to varying degrees of secondary alterations. Basalts are aphyric (up to 15 mm), they are massive or porous (porosity does not exceed 5-7% of volume). The pores are usually completely or on the walls are filled by secondary minerals. A piece (2.5 x 2 cm) of aphyric low-crystallized rock (sample 2792-1-9) also occurs in the dredge. According to features of composition and texture it can be attributed to pyroxene komatiites or pyroxene (melanocratic) isolations in basaltic magma.

2. Sedimentary rocks comprise of three fragments (up to 3 cm) of yellowish-brown gravelly sandstones (sample 2792-2). These coarse-sorted friable rocks are similar to gravelly sandstones from Station 2791, but have some more gravelly material.

Station 2793

1. One semirounded block (50 x 30 cm) and a few small (up to 4 cm) fragments of white organogenous limestone (sample 2793-1) have been dredged.

Station 2794

Approximately 0.5 kg of small (up to 3 cm) semirounded fragments, usually coated with Fe-Mn films have been dredged.

1. Massive highly altered aphyric basalt, a flat piece of highly altered volcanic glass.

2. Sporadic fragments of volcanomictic sandstone.

3. Limestones (3 samples).

Station 2796

About 0.2 kg of material (8 fragments) up to 4 cm represented by basalts, limestones, and Fe-Mn crusts have been dredged.

1. Basalts – three semirounded fragments of dark-gray color. One piece (sample 2796-1-3) has a well-defined segment form that is characteristic of spheroidal jointing. Basalts are massive aphyric, their surface is highly altered.

2. The limestones are represented by two white, cavernous fragments covered with Fe-Mn crust about 1.5 cm thick.

3. Fe-Mn crusts also form separate pieces.

Station 2797

About 0.3 kg of small (up to 4 cm) fragments of limestones and basalts have been dredged.

1. Limestones (sample 2797-1) are white cavernous rocks; they dominate highly in the dredged material.

2. Basalts are massive aphyric gray colored (sample 2797-2).

Station 2798

10-12 kg of material comprised of volcanic and sedimentary rocks, limestones and mineral fragments have been dredged.

1. Volcanic rocks (samples 2798-1, 2798-2) compose about 50% of the dredged material. They comprise of small (up to 15 cm) semirounded fragments of basalts and sporadic fragments of volcanic glass. Some samples are parts of spheroidal jointing with well-defined glassy crust of hardening (samples 2798-1-5, 2798-2-3). In some samples (2798-10; 2798-2-3) thin veinlets of calcite (up to 8 mm) occur. According to textural-structural features basalts of this station are clearly divided into two groups. Basalts of the group 1 compose the majority of the samples. These are light-gray, massive, more crystallized. Probably, they represent fragments of the interior of lava flows, or parts of the flow relatively distant from the surface. They have no pores and cracks typical for zones of hardening forms and glassy crusts. Basalts of the second group (30%), sometimes with hardening crust, perhaps, formed in the upper parts of the flow. These are massive aphyric dark-gray rocks.

2. Sedimentary rocks: sandstones and volcanomictic gruss. Sandstones (sample 2798-3) compose not more than 10% of the dredged material. They comprise of small (up to 8 cm) flat brownish-gray fragments. These low-lithified rocks, similar to fine-grained sandstones and silty sandstones from Stations 2786, 2790, and 2794; detrital material in them comprises of fragments of rocks and minerals (up 87.5% of clinopyroxene, hornblende, epidote, ore mineral, opal, and plagioclase). Gruss – two small (up to 4 cm) fragments of brownish-gray-green color, partly coated with Fe-Mn film. Coarse clastic material composes not more than 20% of the rock and comprises of small (up to 1 cm), almost not-rounded fragments of basalts (samples 2798-12, 2798-13), which are cemented by fine clastic material.

3. Organogenous limestones have been dredged as a block of white massive homogeneous rock and 9 small semirounded porous fragments with well-defined organogenous texture (sample 2798-6).

4. Mineral formations are represented by 4 small (up to 5 cm) fragments of different colors. Some samples can be noted among them: grayish-white cavernous (porous) calcite (sample 2798-7) and pale pink massive aggregates of calcite and smectite with predominance of calcite (samples 2798-8, 2798-9), as well as thin (about 8 mm) flat fragment, which is a calcite veinlet in gruss (sample 2798-11).

Station 2799

5-7 kg of small fragments of sedimentary and volcanic rocks, organogenous limestones and minerals have been dredged.

1. Sedimentary rocks compose up 60-70% of the dredged material. They comprise of coarse sorted medium-fine pebbled conglomerate-gritstones, partly changing to gruss that generally indicates poor sorting of clastic material. Conglomerates-gritstones are light greenish-gray or greenish-brown rocks, usually low-lithified, rarely massive with traces of hydrothermal alteration. Their fragments are of gravelly-pebbly and psammite size. Amount of coarse material in different samples ranged from 0-50 to 5-10% of rock volume. Large fragments are mainly composed of aphyric basalts typical for the northern part of the Amirante arc. Less common are fragments of volcanic glass, minerals (carbonates, smectite with calcite aggregates) and limestones. Gravelly-pebbly fragments are cemented by coarse grained psammitic material composing up to 90% of the rock. The latter is a finer product of destruction and redeposition of mainly volcanic rocks, which consist mainly of rounded fragments of aphyric basalt and volcanic glass, and in subordinate amount of mineral debris (clinopyroxene, plagioclase, rarely – ore mineral). All pieces in the conglomerate-gritstones are cemented by carbonate-smectite material. Cement is of contact and pore-filling types. In general, the sedimentary rocks of this station are similar to those

from Station 2787, differing from the latter by less amount of coarse clastic material. Composition, shape and proportion of fragments indicate that the sedimentary rocks formed in the coastal zone near a sourceland and basalts typical for this part of the Amirante arc were products of destruction.

2. Volcanic rocks (sample 2799-2) compose 25-30% of the material dredged and comprise of small (up to 8 cm) semirounded and rounded fragments of basalts, probably, pebbled conglomerate-gritstones. These are massive, aphyric rocks of dark gray or brown color with sporadic small pores composed of secondary minerals. Some fragments of basalts are fully (sample 2799-2-6), or partly (samples 2799-2-5, 2799-2-7) of red-brick color. One piece (sample 2799-2-1) is a well-defined segment of spheroidal jointing.

3. Organogenous limestones (sample 2799-3) – some small fragments (up to 5 cm) of yellowish-white color.

4. Minerals (sample 2799-4) are represented by small fragments (up to 5 cm) of reddish-brown silica with a little druse of quartz crystals on the surface (sample 2799-4-1) and fragments of a yellowish-pink calcite-smectite aggregate (samples 2799 -4-2; 2799-4-3).

CENTRAL BLOCK

Station 2800

About 10 kg of material are represented by basalts, limestones, and Fe-Mn formations have been dredged.

1. Basalts (sample 2800-1) compose not more than 30% of the dredged material. They comprise of a small rounded block (18 x 15 cm), two semirounded fragments 4-7 cm (samples 2800-1-2, 2800-1-3) and some fragments smaller than 3 cm. For some samples (saw cut) zoning on the extent of secondary alteration is clearly observed, intensity is higher at edges of samples (2800-1-1, 2800-1-2). Visually basalts are aphyric massive (sample 2800-1-2) or low-porous (samples 2800-1-1, 2800-1-3) yellowish-brown, or light gray (samples 2800-1-1, 2800-1-3) rocks. Pores do not exceed 3-5% of rock volume; their size is up to 1.5 mm.

2. Limestones (sample 2800-2) are about 70% of the dredged material. They are composed of one block (25 x 12 x 8 cm) and some small (up to 4 cm) hard cavernous grayish-white pieces.

3. Some small (up to 4 cm) Fe-Mn crusts (up to 1 cm thick) with uneven surface have been dredged (sample 2800-3).

Station 2801

Approximately 1 kg of basalt and limestone fragments has been dredged.

1. Basalts (sample 2801-1) are represented by two small (less than 5 cm) semirounded fragments (samples2801-1-1, 2801-1-2). 2801-1-1 – massive dark gray glassy basalt with few (less than 3%) pores; 2801-1-2 – light gray massive aphyric basalt with microcrystalline texture.

2. Limestones (sample 2801-2) are represented by one large (10 x 6 x 4 cm) and some smaller (less than 3 cm) light gray fragments.

Station 2802

About 3 kg of basalts, sedimentary rocks, limestones and Fe-Mn oxyhydroxides have been dredged.

1. Basalts (sample 2802-1) are represented by 8 small (up to 6 cm) semirounded 2-6 cm fragments, occasionally (sample 2802-1-1) covered with Fe-Mn crust up to 0.6-0.8 cm thick These are massive aphyric rocks colored from dark-and light-gray (samples 2801-1-2, 2801-1-3) to brownish-gray depending on secondary alterations. In some samples (2801-1-1, 2801-1-3) sporadic small (up to 0.5 mm) pores occur.

2. Limestones – some massive fragments (one 4-6 cm, others less than 2 cm) with a cavernous surface, light-cream color (sample 2802-2).

3. Sedimentary rocks are represented by one fragment (8 x 6 x 6 cm) of coarse-sorted conglomerate-gritstone (sample 2802-3) with grayish-cream color, which consists of unequal-sized clastic material and cementing material. Big fragments (more than 2.0 cm) compose no more than 10-15% of the rock and are well-rounded fragments of basalts, limestones and volcanic glass of gray, greenish-gray and reddish color. The bulk of detrital material (0.2-0.8 cm) is composed of basalts, volcanic glass, clinopyroxene, plagioclase, and limestones. All detrital material is cemented by carbonate-smectite with predominance of calcite.

4. Fe-Mn oxyhydroxides (sample 2802-4) are represented by several (8 pieces) small (less than 2 cm) flat fragments of crusts with uneven surface, up to 0.8 cm thick.

SOUTHERN BLOCK

Station 2803

Approximately 5 kg of magmatic, sedimentary and limestone rocks have been dredged.

1. Magmatic rocks (sample 2803-1) compose around 90% of all the material and are

small (up to 6 cm), angular and semirounded fragments (16 pieces) usually covered with a thin film of Fe-Mn oxyhydroxides with fluccans of light beige lithified pelagic clays. Dolerites dominate (samples 2803-1-3, 2803-1-4); they are crystallized rocks with dolerite texture composed of pyroxene- and plagioclase grains (0.15-0.7 mm), sometimes with porphyric secretions, and microdolerites with microdolerite bulk mass (grains are less than 0.2 mm). Fine-grained gabbro (samples 2803-1-1, 2803-1-2) is crystallized rock composed mainly of clinopyroxene (grains 0.7-2.5mm) and plagioclase (0.7-2.5 mm, mostly 1-1.5 mm). Porphyritic basalts – rocks with glassy bulk mass, hyalopilitic, hyaline, rarely intersertal texture and with well-defined porphyritic phenocrysts of clinopyroxene and plagioclase (sample 2803-1-5). Often it is difficult to find clear boundaries between different varieties of crystallized rocks and basalts. Occurrence of transitional varieties testifies to the affinity of all these rock varieties to a common magmatic complex.

2. Sedimentary rocks (sample 2803-2) are represented by 4 small fragments (up to 4 cm) of light-beige lithified pelagic clays. These are soft rocks (cut with a knife); their fragments are covered with Fe-Mn films and crusts. Smectite dominates in clay composition; silica and stilbite occur in noticeable amount.

3. Limestones (sample 2803-3) are represented by one small (up to 4 cm) semirounded white fragment covered with Fe-Mn film.

Station 2804

80-100 kg of rock material represented by sedimentary and magmatic rocks, Fe-Mn nodules and mineral formations have been dredged.

1. Sedimentary rocks compose up 40-45% of the material dredged. They are 4 blocks (40 to 20 cm) and numerous fragments (up to 15 cm) covered with Fe-Mn crusts up to 2 thick. Some boulders and fragments are central parts of large Fe-Mn nodules. Sedimentary rocks can be easily broken by hands, cut with a knife. They have a greenish-gray, sometimes greenish-white, beige and chocolate-beige color. Two varieties are distinguished among them: sedimentary breccias (sample 2804-1) and lithified pelagic clays (sample 2804-2); the large blocks are mainly represented by sedimentary breccias, and small fragments are usually lithified pelagic clays. Samples of the first group rocks are characterized by presence (10-15%) of igneous rock (gabbros, dolerites, basalts) fragments up to 5-7 cm (sample 2804-1-1) with fine filling (mixture of smectite, chlorite, serpentine with admixture of talc) of the breccia. In the pelagic clay psephitic fragments are observed very rarely, and psammitic fraction is represented by fragments of magmatic rocks and minerals from them, such as epidote, hornblende, tremolite-actinolite, chlorite, ore minerals (including spinel) and pyroxenes. Clastic material in sedimentary rocks of this station indicates that they

formed in a zone of disintegration of magmatic rocks.

2. Magmatic rocks (sample 2804-3) compose about 40% of the dredged material. They are represented by two blocks: 25 x 20 x 20 cm (sample 2804-3-1) and 22 x 20 x 15 cm (sample 2904-3-2), three large fragments (10-15 cm) and numerous fragments of less than 10 cm. The blocks and most of the fragments are covered with Fe-Mn crusts of various thicknesses (up to 2 cm) and in fact are centers of Fe-Mn nodules. Minority of the fragments (including the largest) are covered with Fe-Mn films. Probably the latter are fragments in sedimentary breccias. Coarse-grained (pegmatoid) clinopyroxene-plagioclase gabbro (sample 2804-3-2), medium-grained gabbro-norite (samples 2804-3-16, 2804-3-3, 2804-3-37, 2804-3 -52; 2804-3-57), as well as a large number of fragments represented by more fine-grained and glassy rocks are distinguished among magmatic rocks. The fine-grained crystallized rocks compose the main part of the dredged magmatic rocks. By composition these are fine-grained gabbro, dolerites (porphyritic and aphyric) and microdolerites, generally similar to rocks from Station 2803. Two fragments are represented by porphyritic glassy basalts (samples 2804-3-11, 2804-3-25 – contact of basalt with dolerite). Also here numerous (about two tens) small (up to 6 cm) pieces of serpentinite, serpentine-talc, serpentine-talc-lizardite and talc-lizardite aggregates have been dredged.

3. Fe-Mn nodules compose 15-20% of the dredged material. These are real Fe-Mn nodules of spherical shape (3-5 cm). In addition, most of individual fragments of various shapes and sizes are also covered with Fe-Mn crust up to 2 cm thick. This shows a significant manifestation of Fe-Mn mineral formation.

Station 2806

About 30 kg of rock material represented by limestones, sedimentary and magmatic rocks and minerals have been dredged.

1. Sedimentary rocks compose up 60-70% of the dredged material and represent blocks and fragments of various sizes (samples 2806-1, 2806-2). According to form of clastic material and features of cementation sedimentary breccias (sample 2806-1) and conglomerate-gritstones (sample 2806-2) can be distinguished. The former sharply prevail. These are blocks and fragments of friable coarse-sorted dark-brownish-yellowish-gray rocks consisting of angular and semirounded fragments of basic magmatic rocks, rarely limestones. Fragment size is from 2-5 mm to 2 cm with a predominance of smaller ones. All fragments occur in carbonate mass with small admixture of chlorite and smectite and are cemented by Fe-Mn oxyhydroxides. Minerals typical for magmatic rocks: clinopyroxene, plagioclase, amphiboles, less ore minerals dominate among psammitic clastic material. Sedimentary rocks of this type formed in the immediate vicinity of disintegrated rocks. Sedimentary rocks of the sec-

ond group are represented by several fragments. These are low-lithified conglomerate-gritstones (sample 2806-2), poorly graded fine-medium pebbled rocks, sometimes passing to gritstones. They are dark greenish-gray. Pebble size varies from some mm up to 2-3 cm, rarely up to 5 cm. Basic magmatic rocks and rarely limestones usually occur in the pebbles. Cements mass is represented by coarse-grained sandy material consisting of fragments of magmatic rocks and their characteristic minerals. All pieces occur in pelitomorphic mass consisting of carbonate, chlorite, zeolite and smectite.

2. Limestones (sample 2806-3) compose less than 15% of the material. They are represented by several fragments (up to 15 cm) of yellowish-white porous rocks. The largest fragments are covered with Fe-Mn film or thin crust.

3. Magmatic rocks (sample 2806-4) compose 10-15% of the dredged material and are presented by one block (20 x 18 cm); other rocks are represented by 15 small (up to 8 cm) fragments. The fragments are angular or low-rounded, usually covered with Fe-Mn film or thin crust (up to 0.5 cm).

Both crystallized and glassy varieties occur among the magmatic rocks. The crystallized rocks predominate. Several varieties can be distinguished among them, as well as at Stations 2803 and 2804. Three samples (2806-4-9, 2806-4-10, 2806-4-11) are represented by medium-grained gabbro-norite, similar to those from Station 2804. Pyroxene-plagioclase fine-grained gabbros (samples 2806-4-3, 2806-4-4, 2806-4-5, 2806-4-6) and dolerites (samples 2806-4-2, 2806-4 -7; 2806-4-8, 2806-4-12, 2806-4-13, 2806-4-14) comprise most of the crystallized rocks. Moreover, aphyric (sample 2806-4-13) and porphyritic varieties are distinguished among dolerites. As at previous stations, the group of crystallized fine-grained rocks (fine-grained gabbros and dolerites) is characterized by nearly identical appearance (massive blue-gray or yellowish gray – depending on degree of rock alteration) and the same mineral composition, differing only in size of minerals forming them. Glassy varieties are represented by two fragments of porphyritic and pyroxene-plagioclase basalts with hyalopilitic (sample 2806-4-15) and hyaline (sample 2806-4-16) texture of the bulk mass.

4. Minerals (sample 2806-5) are two pinkish-beige elongated samples (up to 5 cm) composed of calcite.

In general, a set of rocks characteristic for the Southern block of the Amirante Arc has been dredged at the station. All the varieties of magmatic rocks from Station 2806 are similar to magmatic rocks from Stations 2803 and 2804. Predominant role of fine-grained rocks (gabbros and dolerites) is noted.

Station 2807

30-40 kg of magmatic rocks and Fe-Mn nodules have been dredged.

1. Magmatic rocks (sample 2807-1) compose 85-90% of the dredged material. These are 3 blocks (up to 25 x 20 x 20 cm) and numerous smaller fragments, which are coated with Fe-Mn crust (up to 1.5 cm) or film, and fragments smaller than 6 cm are usually cores of Fe-Mn nodules, inherited forms of the fragments. Fluccans of pelagic clays occur in some samples. The largest boulder (sample 2807-1-1) is composed of highly altered magmatic rock with serpentine and amphiboles of the tremolite-actinolite series. Relict minerals are represented by clinopyroxene, orthopyroxene, and spinel (data of mineralogical analysis), which may indicate that originally it was gabbro-norite or harzburgite. Medium-grained gabbro-norites (samples 2807-1-2, 2807-1-3, 2807-1-4, 2807-1-5, 2807-1-7, 2807-1-8) dominate among the remaining boulders and fragments. They are similar to analogical rocks dredged at Stations 2804, 2806. Medium-grained clinopyroxene-plagioclase gabbro (samples 2807-1-28, 2807-1-32, 2807-1-33, 2807-1-40, 2807-1-45), clinopyroxene-amphibole-plagioclase gabbro (sample 2807 -1-35), amphibole-plagioclase gabbro (samples 2807-1-6, 2807-1-43, 2807-1-47) are present in lesser amount. One fragment (sample 2807-1-2) comprises of coarse-grained (pegmatoid) amphibole gabbro, and three fragments (samples 2807-1-70, 2807-1-71, 2807-1-72) comprise of altered leucocratic gabbro. Fine-grained dolerites (samples 2807-1-61, 2807-1-62, 2807-1-69) and porphyritic glassy pyroxene-plagioclase basalts (samples 2807-1-52, 2807-1 -- 64; 2807-1-66) occur among small fragments (up to 6 cm). Also about 20 small fragments of serpentinites, altered ultramafic rocks (apoharzburgites – samples 2807-1-53, 2807-1-78, 2807-1-81, 2807-1-87 and websterites – sample 2807-1-39), as well as serpentine-talc, serpentine-talc-chlorite and serpentine-talc-amphibole aggregates have been sampled at the station. It also indicates presence of altered ultramafic rocks at Station 2807; here amount of their fragments is somewhat greater than at Station 2804.

2. Fe-Mn nodules (sample group 2807-2) compose not more than 10-15% of the dredged material. As at Station 2804, these are spherical Fe-Mn nodules with almost smooth surface and size of 3-5 cm. Many of fragments of magmatic rocks are covered with Fe-Mn crust usually up to 2 cm thick. One sample (2807-1-59) is represented by breccia, in which fragments of different magmatic rocks are cemented by Fe-Mn oxyhydroxides.

Station 2808

About 10 kg of material represented by limestones and volcanic rocks have been dredged.

1. Limestones (sample 2808-1) occur as one large boulder and fragments of massive cavernous reef limestones. At lower parts of the fragments observed small pebbles (up to 1.5 cm) of volcanic rocks occur. One of the pebbles (about 6 x 4 x 5 cm; sample 2808-2) has flattened shape and is composed of massive porphyritic basalt.

2. Magmatic rocks are represented by sporadic small (up to 1.5 cm) pebbles of massive porphyritic basalts, attached to lower parts of the limestone boulders. Phenocrysts compose 10-15% and are represented by crystals of clinopyroxene and plagioclase, and the bulk of tholeiitic structure consists of plagioclase (60-70%), clinopyroxene and glass.

Station 2809

About 20 kg of material (fragments of cavernous limestone (80%) coated with Fe-Mn oxide film and semirounded fragments of pumice) have been dredged.

Station 2810

One block (30 x 22 x 20 cm) of reef limestone coated with Fe-Mn film has been dredged.

SEYCHELLES BANK

Station 2812

Small (up to 5 cm) pieces of reef limestone (about 7 kg) and calcareous mud have been sampled.

Station 2813

Coarse-grained quartz-carbonate gravelly sand. Gravelly particles are quartz fragments.

Station 2814

Fine grained silty carbonate sand (coral-detritus).

Station 2815

Fine-grained carbonate (clastic-coral) sand mixed with shell detritus and small (sandy-gravelly size) fragments of phosphorites.

Station 2816

Coarse-grained gravelly sand (debris-coral).

Station 2817

Fine-grained foraminiferal silty sand.