GUIDE OF EXCURSION L -1

FIELD TRIP TO THE RINCONADA GROUP [1],

by

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ITINERARY

July 8th, 1971

TIME

8:00 a.m.

Departure from Hotel Bella Vista.

8:35 a.m.

Stop 1-a: Manzanillo Shear Zone (25 min).

This stop, located just west of Manzanillo on the northern tip of the Island, gives us a good picture of the nature of the Manzanillo Shear Zone, the axis of which is exposed at the coast at this point. Besides the very noticeable shearing and rotation of blocks, some of which are obviously exotic, you will note the great variety of rock types encountered. There will be enlarged photomicrographs of some of them available for inspection. Of special interest is the development of the many metasomatic alteration products of ultramafic protolith found here. Although sheared and distorted, the crude zonal arrangement of talc, actinolite, and chlorite shells around the antigorite bodies (CURTIS and BROWN, 1969) is still apparent. In addition, green phengite (?) and colorful tremolite are associated with the actinolite aggregates.

9:10 a.m.

Stop 1-b: Village of Manzanillo (10 min.).

Now, on the southern side of the Manzanillo Shear Zone, the abrupt change of rock type from the dark amphibolite with prominent mica porphyroblasts of Stop 1-a to the blue-green gneisses of this outcrop is apparent. Here also are found sheared gneissic acid intrusives, interbanded graphitic (s.l.) mica schists, and interbands of sheared talc and antigorite. The effect of large-scale shearing is also apparent in the retrograde metamorphism of most of these amphibole-bearing gneisses to albite-chlorite-carbonate-epidote assemblages.

9:45 a.m.

Stop 2: La Asunción Road-Cut (20 min.).

The gneisses here are stratigraphically just below the Juan Griego Group, and the contact is located in the vicinity, though poorly exposed. Petrographically they are very similar to the examples examined at Stop 1-b, and again they exhibit moderate to strong shearing, probably in part due to the El Boquerón Fault (TAYLOR,1960), which is located about 500 m. south of here. The reason for this stop is that this road-cut offers an excellent opportunity to study the style of deformation these gneisses have undergone. Characteristically the folds are almost isoclinal, non-plane, and non-cylindrical. At least two sets of folds can be regionally identified.

10:20 a.m.

Stop 3: Guayacán Road (30 min).

This coastal exposure is typical of the coarse-grained garnetiferous gneisses found along the north coast of Margarita and especially north of the Manzanillo Shear Zone. These grayish gneisses, with occasional to numerous chrome-green omphacite bands, are strikingly contrasted by the talcose zones of concentrated shear, and by a dark paragonite —and omphacite—bearing amphibolite (original intrusive?). The rubble in the roadway leading to the hill contains some of the freshest examples of the extremely coarse-grained and unusual amphibole-paragonite eclogite that makes up most of the hill directly to the east. This rock, originally composed of paragonite, barroisite, omphacite and games, now shows complex disequilibrium textures. Enlarged photomicrographs exhibiting the various well-preserved "frozen reactions" will be available.

11:00 a.m.

Stop 4: Village of Guayacan (30 min.).

The last stop on the excursion will concern itself with one large example of the numerous acidic intrusives which occur in most of the area of outcrop of the La Rinconada Group. Most of these, as in this case, are sheared and have been metamorphosed to albite-muscovite-paragonite-epidote-chlorite assemblages. The texture of these intrusives thus varies from igneous in the "Matasiete Soda Granite Porphyry" (HESS and MAXWELL, 1949), to an augen-gneiss (TAYLOR, 1960) to totally gneissoid. In composition, they range from trondhjemite to granite with increasing amounts of perthitic microcline. Of special interest here are also the numerous inclusions of antigorite schists (and related rock-types) and amphibolitic gneiss "swimming" within, and deformed with, the intrusive.

GENERAL INFORMATION

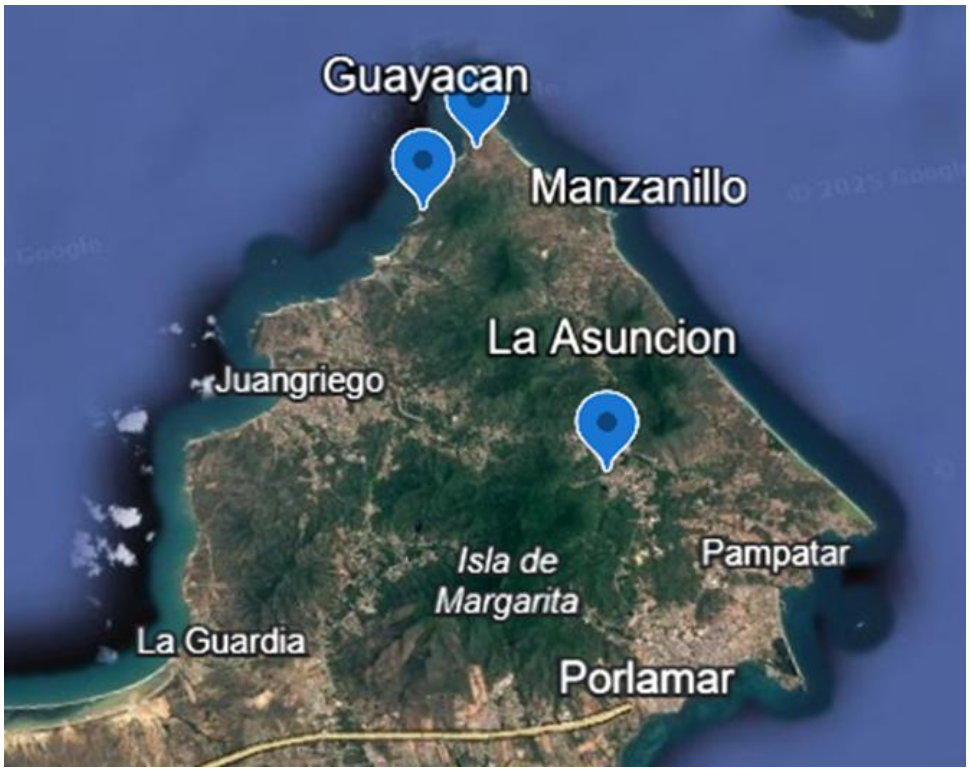
The purpose of this trip is to examine and discuss some of the features of relict high P-low T metamorphism, imprinted on rocks of mid to late Mesozoic age, and now clearly visible in the heterogeneous gneisses of the La Rinconada Group, formerly known as the "Paraguachi Amphibolites" (TAYLOR, 1960), and the "Grupo de las Rocas Verdes" (GONZÁLEZ DE JUANA, 1968) or "greenstone group" (HESS and MAXWELL, 1949). Because of the heterogeneity and distribution of outcrop of this unit, it will be impossible to make a thorough study in the available time, but with the aid of the geological map and discussion of some typical exposures, an overall view should emerge.

In many respects, the metamorphic terrain of north-eastern Margarita is reminiscent of the well-studied Sanbagawa Terrain of the Outer Metamorphic Belt of Japan (ERNST *et al*., 1970) and it is quite likely that both share a similar history. On Margarita, the main

body of the metamorphic complex is an accumulation of metamorphosed mafic volcanic sediments with possible flows and intrusives, all interspersed with minor graphitic (s.l.) mica schists. These mafic volcanic sediments now carry blue-green barroisite or carinthine, and contain omphacite as well as lenses of amphibole-paragonite eclogites in the extreme north of the Island. Found within these amphibole-bearing gneisses are: (1) a variety and great volume of ultramafic lenses and irregular masses, generally made up of foliated serpentinite conformable to the host-rock, and (2) widespread granitic intrusions, ranging in composition from trondhjemite to granite, always intensely sheared and usually totally recrystallized and metamorphosed.

The distribution of omphacite-bearing assemblages, and the petrography and mineralogy of the gneisses (notably the composition of amphibole) indicate that at the time of the metamorphism producing the sodic pyroxene, a metamorphic gradient existed, with pressure increasing and/or temperature decreasing from south to north. Well -preserved disequilibrium textures further show that the entire area was subsequently subjected to higher temperatures typical of the epidote-amphibolite facies of metamorphism.

The La Rinconada Group is structurally complex in detail, but generally exhibits a deceptively simple overall stratigraphic continuity. It is conformably overlain by the quartz-feldspar-mica schists of the Juan Griego Group, with which it has been deformed into a large complex antiform, plunging moderately to the south-west with nearly vertical limbs.



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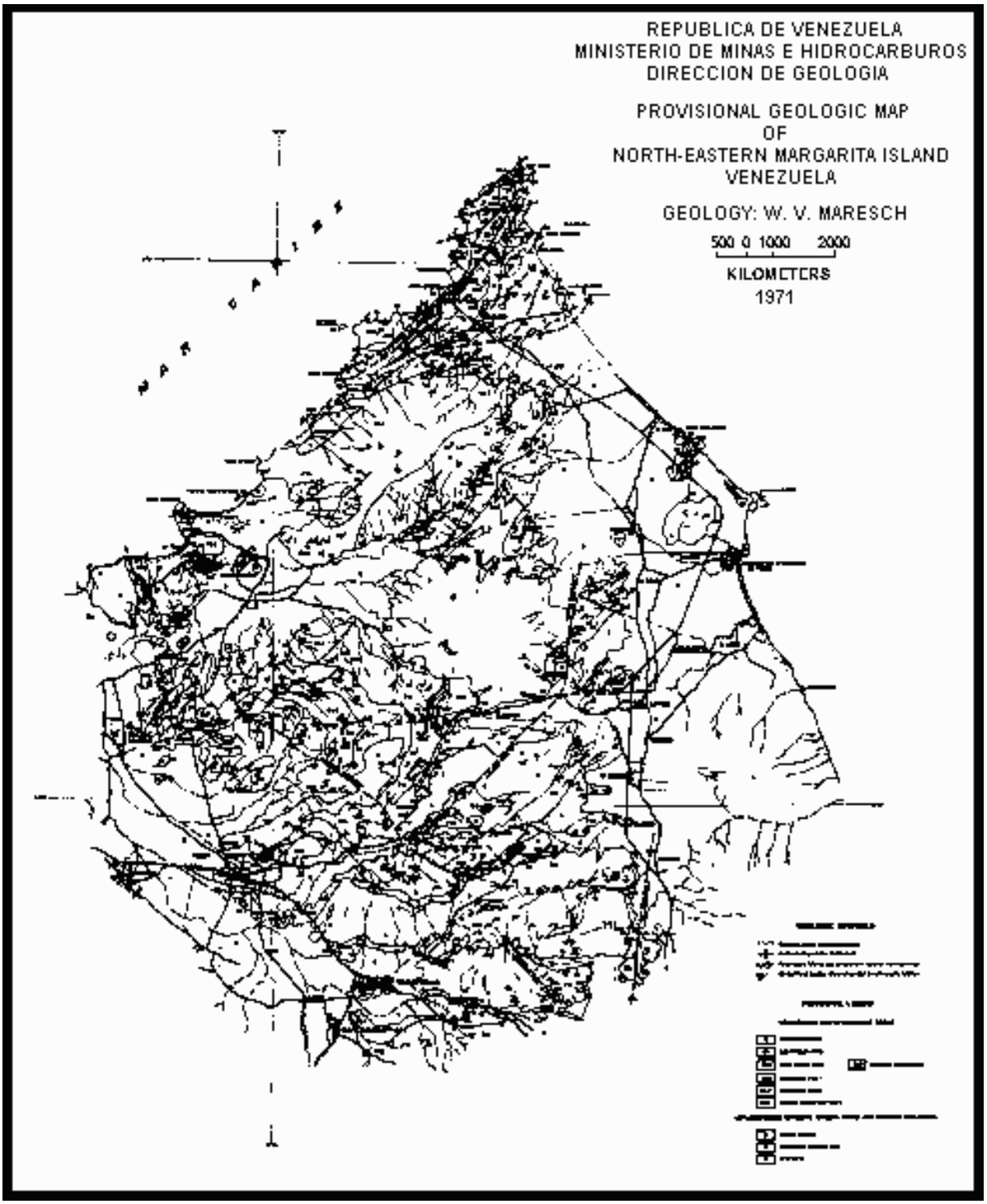
REPUBLICA DE VENEZUELA
MINISTERIO DE MINAS E HIDROCARBUROS
DIRECCION DE GEOLOGIA
PROVISIONAL GEOLOGIC MAP
OF
NORTH-EASTERN MARGARITA ISLAND
VENEZUELA
GEOLOGY: W. V. MARESCH
500 0 1000 2000
KILOMETERS
1971

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[1] Por W. V. Maresch, VI Conferencia Geológica Del Caribe-Margarita, Venezuela, Memorias 1972, pp. 20-21.

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