FIGURE 1.

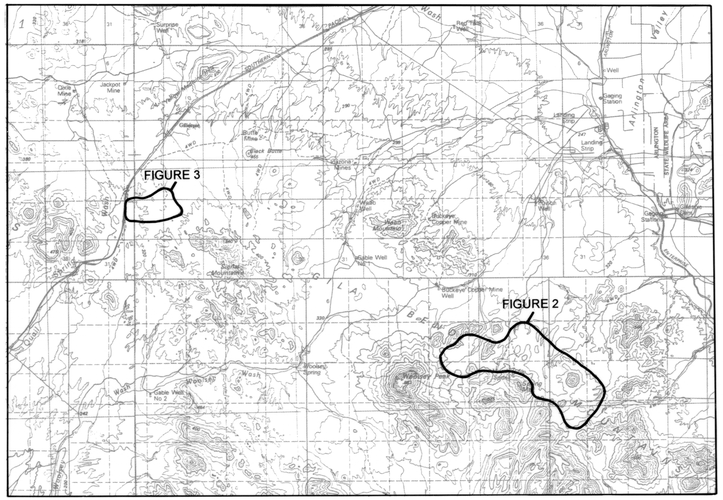

FIGURE 3.

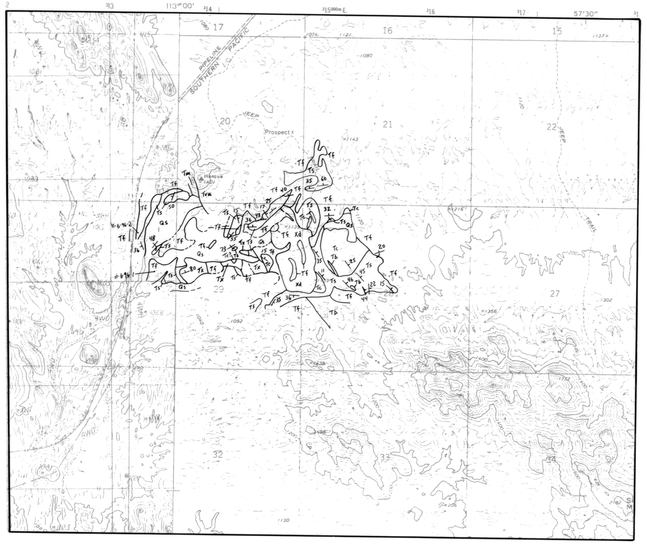

FIGURE 2.

Geologic Maps of parts of the Gila Bend Mountains near Woolsey Peak and Signal Mountain, southwestern Arizona

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June 1997

Arizona Geological Survey Open-File Report 97-8

Introduction

Geologic mapping in selected parts of the Gila Bend Mountains (Figure 1) was undertaken to clarify structural and stratigraphic relationships in two areas where previous mapping was of insufficient detail to resolve important geologic field relationships.

Peterson and others (1989) mapped several square miles of pre-volcanic Tertiary sedimentary rock east-northeast of Woolsey Peak in the eastern Gila Bend Mountains. It is unclear from their map, however, if these rocks were significantly tilted by extensional faulting or if their deposition occurred in response to topography produced by extensional faulting. New mapping reported here (Figure 2) indicates that the sandstone and conglomerate beneath the basaltic volcanic rocks were deposited on pre-Tertiary crystalline rocks, are not significantly faulted or tilted, and may have been deposited in response to development of volcanic landforms rather than to normal faulting.

Skotnicki (1994) mapped "rhyolite porphyry and rhyolite" (his map unit Trp) that "are interbedded with sedimentary rocks northwest of Signal Mountain," but mapped field relationships suggest either fault or intrusive contacts with Tertiary conglomerate. New mapping reported here (Figure 3) indicates that the "rhyolite" is an intrusive, plagioclase+biotite+hornblende felsite with little or no quartz. Tertiary conglomerate intruded by the felsite is variably tilted with diverse bedding strikes. Diverse bedding strikes and complex intrusive contacts suggest that tilting is primarily related to felsite intrusion rather than to extensional faulting which would be expected to produce more uniform strikes.

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Map Units, Woolsey Peak area (Figure 2)

Qs **Surficial deposits (Quaternary)**--Talus, colluvium, alluvial fan deposits, and unconsolidated sand and gravel in modern stream beds and washes.

Tb **Basalt (Miocene)**

Tf **Felsite (Miocene)**--Maroon, porphyritic, vitric felsite with lithic fragments.

Trx **Rhyolitic volcanogenic breccia (Miocene)**

Tts **Tuffaceous sandstone (Miocene)**--Buff to white tuffaceous sandstone, in places cross bedded, with minor interbeds of arkosic sandstone and white tuff. Unit interfingers and grades into arkosic sandstone (map unit Ts) and conglomerate and tuffaceous sandstone (map unit Tcs).

Ts **Sandstone and minor conglomerate (Miocene)**--Arkosic to volcanic lithic sandstone and minor conglomeratic. May be tuffaceous, especially at upper stratigraphic levels. Unit locally contains lenses of pebbly and conglomeratic sandstone. Clasts include both Proterozoic crystalline rocks and Tertiary tuff, with tuffaceous clasts more abundant up section.

Tcs **Conglomerate and tuffaceous sandstone (Miocene)**

Ta **Arkosic sandstone and granite-clast conglomerate (Miocene)**

YXg **Granitic rocks (middle to lower Proterozoic)**

Map Units, Signal Peak area (Figure 3)

Qs **Surficial deposits (Quaternary)**--Talus, colluvium, alluvial fan deposits, and unconsolidated sand and gravel in modern stream beds and washes.

Tb **Basalt (Miocene)**

Tf **Intrusive felsite (Miocene)**--Felsite with plagioclase+biotite+hornblende±quartz. Forms intrusive complex. Contains 15-20%, 1-4 mm feldspar, probably all plagioclase, 1-2%, 1-2 mm biotite, and 1%, 1-2 mm hornblende. Quartz varies from absent to up to perhaps 4%.

Tx **Rock avalanche breccia (Miocene)**--Massive breccia, consisting of angular fragments of Proterozoic mafic granitoids, and minor conglomerate.

Ts **Arkosic sandstone and minor conglomerate (Miocene)**--Varies from red to brown.

Tc **Conglomerate (Miocene)**--Pebble to boulder conglomerate with subrounded clasts of Proterozoic micaceous quartzite, metarhyolite, foliated, quartz-poor meta-andesite (greenstone), quartzite with veinlets of milky quartz, medium-grained granite of unknown age, and rare mafic volcanic or hypabyssal intrusive rock of possible Tertiary age.

Tv **Volcanic rocks, undivided (Miocene)**

Tm **Mafic volcanic rocks, undivided (Miocene)**

Xd **Dioritic granitoids (lower Proterozoic)**

Map symbols

Bedding attitude

Fault

Sample location