## ABSTRACT

This 1:500,000-scale compilation shows the distribution of felsic plutonic rocks, lithologic types, and associated mineralization in an area between lat 21° and 24°30' N., long 43°30' and 46° E. It is part of a shieldwide compilation being done within the framework of Saudi Arabian Deputy Ministry for Mineral Resources projects 2.04 and 3.12.


## EXPLANATION

Lithologic and petrographic data on which the map is based were abstracted from the maps and reports shown in figure 1 (see Sources of Compilation). After the data were assembled, map sheets were photoreduced and compiled on a 1:500,000-scale, geodetically controlled Landsat base prepared by the Saudi Arabian Deputy Ministry for Mineral Resources (DMMR) Remote Sensing Center in conjunction with the DMMR Photolaboratory.

Rock units were classified by using petrographic criteria designated by the International Union of Geological Sciences plutonic rock classification system (Streckeisen, 1976). Mineralogical and modal data were used to define eight major classes of plutonic rocks (fig. 2). Each class is assigned a letter symbol that is the initial letter of all map units that are part of that class (fig. 3). In addition, each map unit is identified by a code of 2, 3, or 4 lower-case letters assigned as follows:

First.... indicates major rock class (fig. 2); for example, g indicates alkali-feldspar-rich granitoid

Second... defines the specific rock type or subclass (figs. 3, 4); for example, gm indicates monzogranite

Third.... is a petrographic modifier, either mineralogic or textural (table 1); for example, gmb indicates biotite monzogranite

Fourth... same as for third; for example, gmbp indicates porphyritic biotite monzogranite

Combination codes are used for complexes in which several rock types are present; for example, gfw/mgb indicates a complex containing Na-Fe pyroxene alkali-feldspar granite and biotite peraluminous granite.

Mineral occurrences associated with felsic plutonic rocks are also shown. The primary data source is the DMMR Mineral Occurrence Documentation System (MODS) data bank. Two levels of mineral occurrences are distinguished in the coding system (table 2): major mineralized occurrence, defined as a drilled site or a site that has warranted extensive investigation, and minor mineralized occurrence.

Table 1.--Rock-name modifiers

a = alkali-feldspar phenocrystal
b = biotite
c = biotite + hornblende
d = plagioclase phenocrysts
e = A granite whose average modal composition falls approximately in the center of the granite (gr) field (that is, essentially a eutectic granite)
f = foliated
g = garnet
h = hornblende
i = intrusive complex
j = hornblende + CaMgFe-pyroxene
k = CaMgFe-pyroxene
m = muscovite
n = muscovite + biotite
p = porphyritic
q = quartz
r = granophyric (totally or in part)
t = magnetite
u = Na-amphibole (arfvedsonite/riebeckite)
v = Na-amphibole + NaFe-pyroxene
w = NaFe-pyroxene
x = perthitic
z = quartz phenocrystal

Table 2.--Selected mineral occurrences

| Minor | Major | Type |
|---|---|---|
| □ | ■ | Disseminated |
| ▯ | ▮ | Vein(s) |
| ⬭ | ⬬ | Stockwork |
| ◊ | ◆ | Pegmatite |
| ▽ | ▼ | Pipe |
| △ | ▲ | Skarn |

Resource potential

| | |
|---|---|
| Au = gold | Sn = tin |
| Ag = silver | Ta = tantalum |
| Ba = barium | Th = thorium |
| Be = beryllium | U = uranium |
| Bi = bismuth | W = tungsten |
| Cu = copper | Y = yttrium |
| F = fluorite | Zr = zirconium |
| Mo = molybdenum | Zn = zinc |
| Nb = niobium | |
| RE = rare earth elements | |


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## SYMBOLS

Contact, dashed where inferred

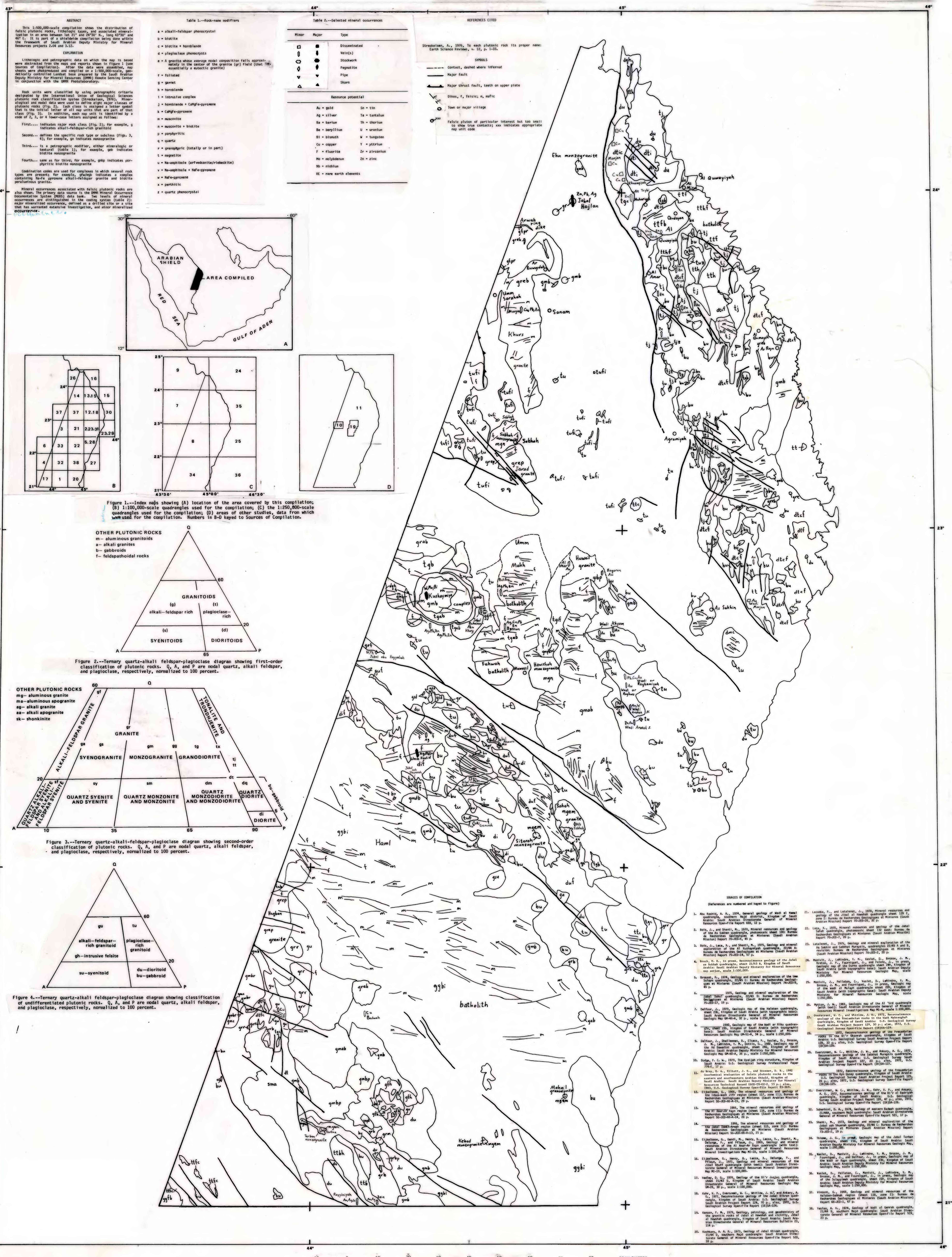
Major fault

Major thrust fault, teeth on upper plate

Dikes, f, felsic; m, mafic

Town or major village

Felsic pluton of particular interest but too small to show true contacts; xxx indicates appropriate map unit code





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This report has not been edited or reviewed for conformity with U.S. Geological Survey standards and nomenclature.

# MAP SHOWING DISTRIBUTION AND CLASSIFICATION OF FELSIC PLUTONIC ROCKS IN THE EASTERN ARABIAN SHIELD, KINGDOM OF SAUDI ARABIA

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1983