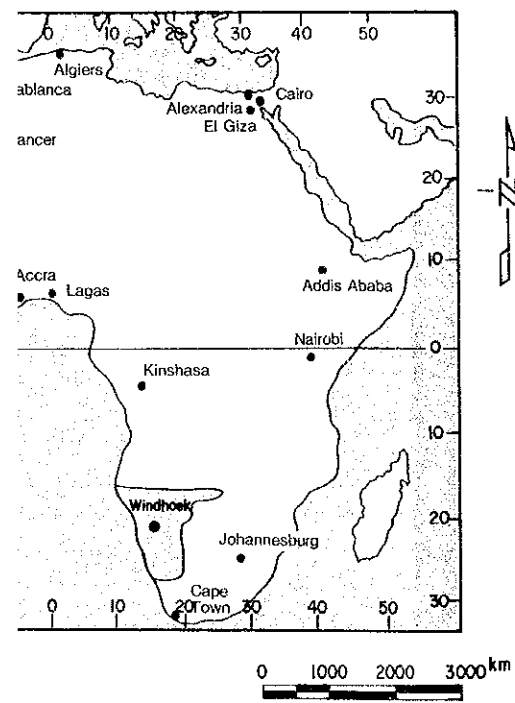
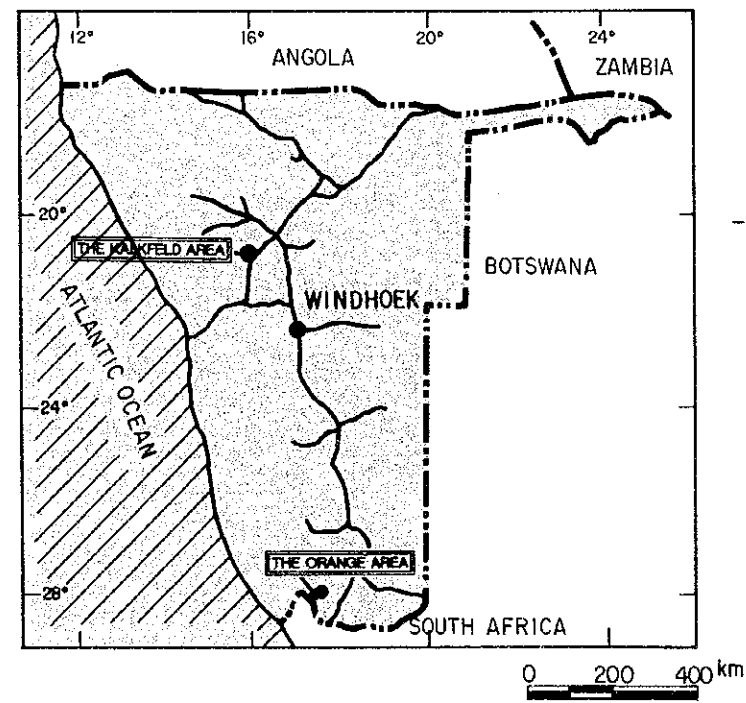


GEOLOGY AND ORE DEPOSITS OF THE ORANGE THE REPUBLIC OF NAMIBIA

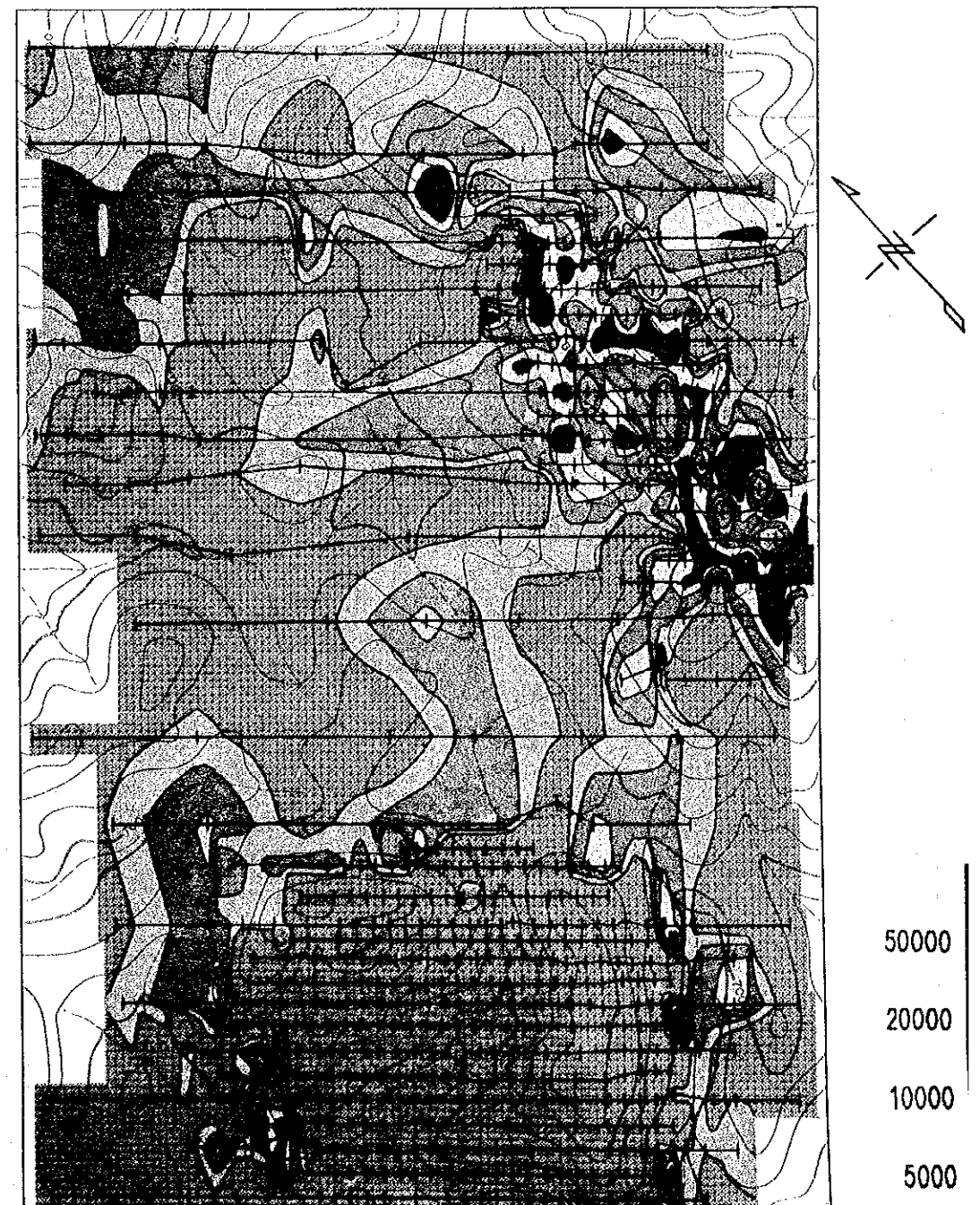
REGIONAL MAP OF NAMIBIA



LOCATION MAP OF THE SURVEY AREAS

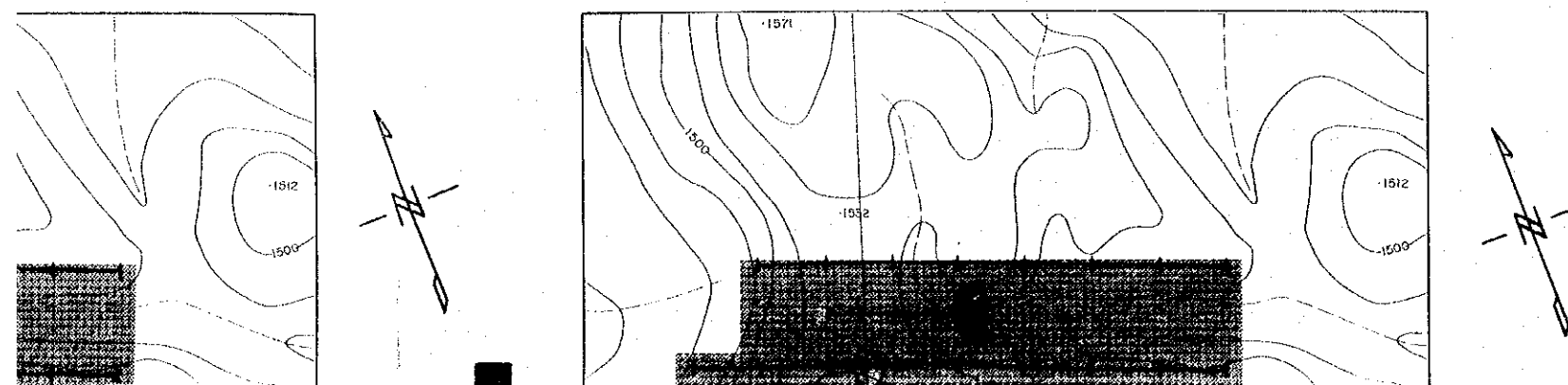


PHOSPHOROUS (P) DISTRIBUTION OF THE ORANGE AREA



DISTRIBUTION OF

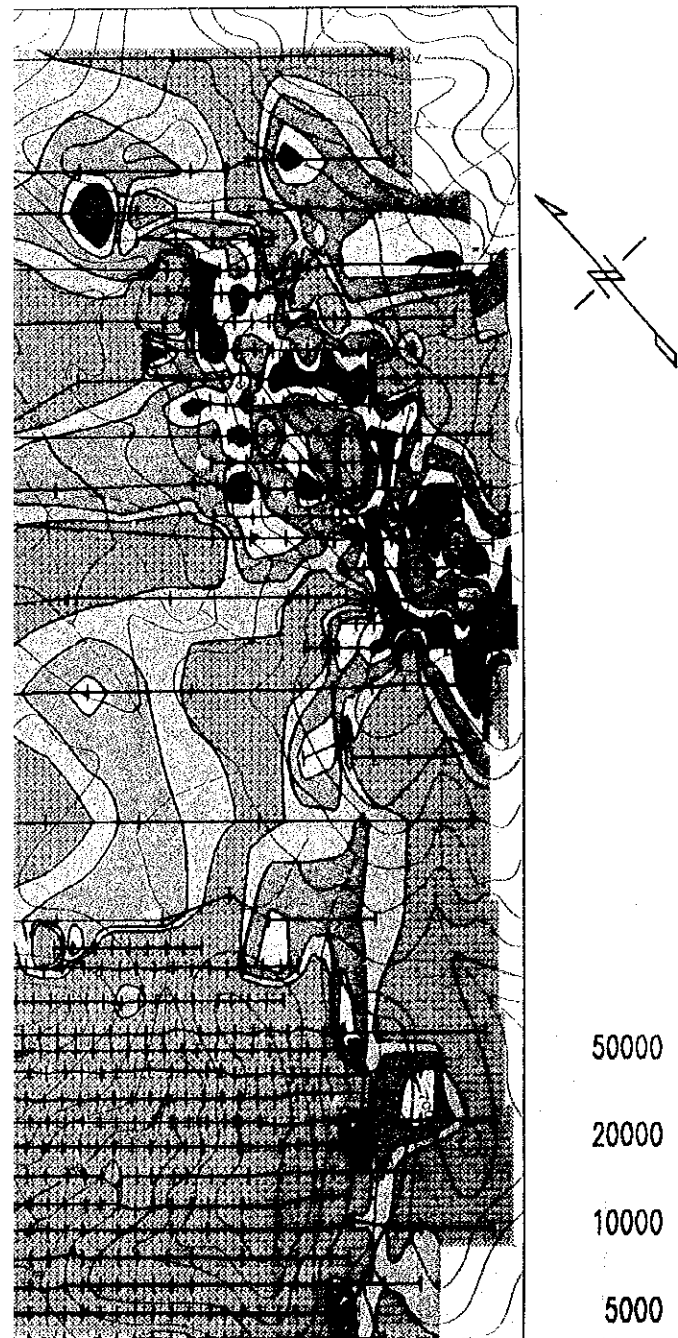
RARE EARTH OXIDES (R2O3) DISTRIBUTION OF THE KALKFELD AREA



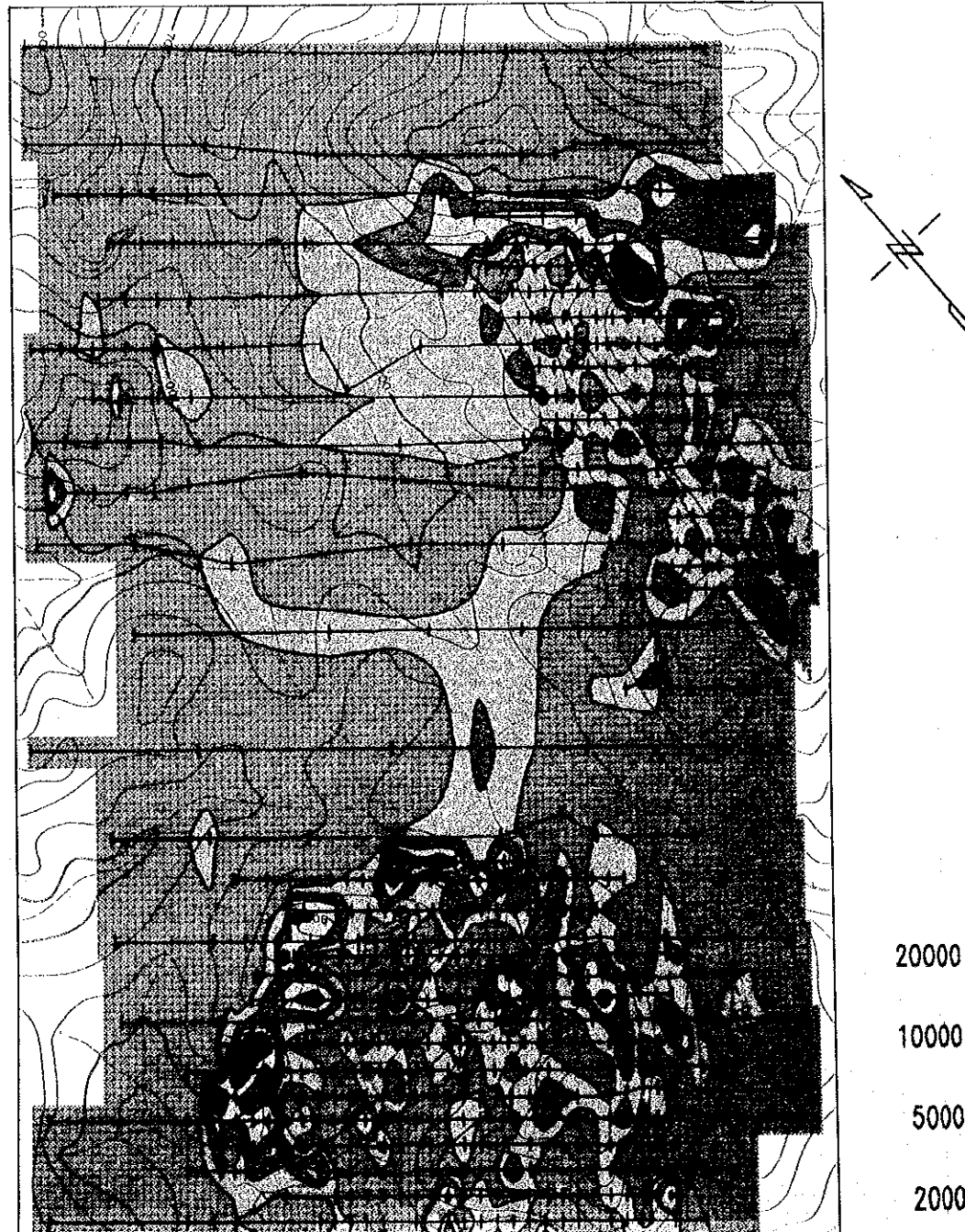
THE ORANGE AND KALKFELD AREAS, SOUTHWEST OF NAMIBIA

THE COOPERATIVE MINERAL EXPLORATION PROGRAM

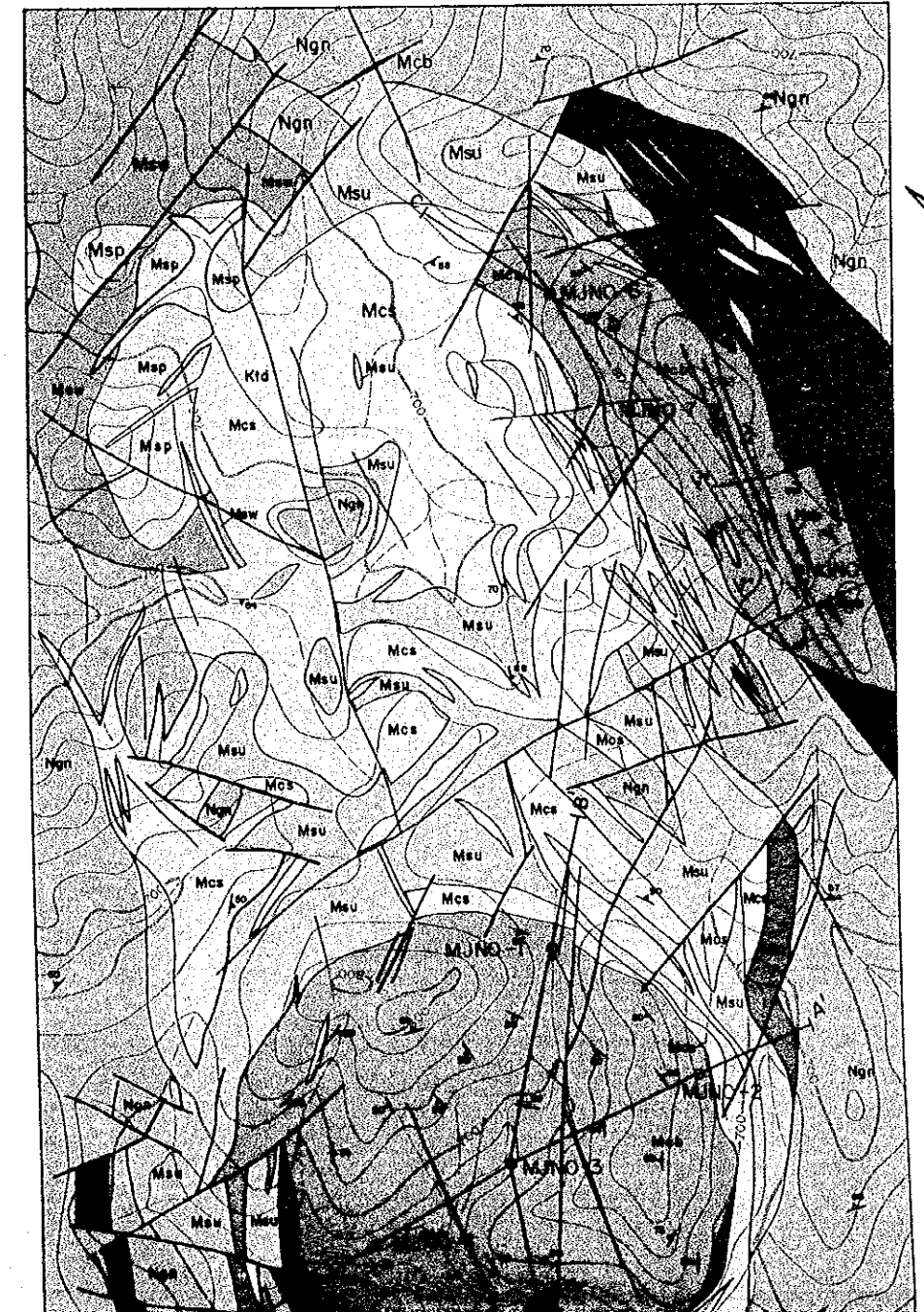
P) DISTRIBUTION OF
SEA



RARE EARTH OXIDES (R2O3) DISTRIBUTION
OF THE ORANGE AREA



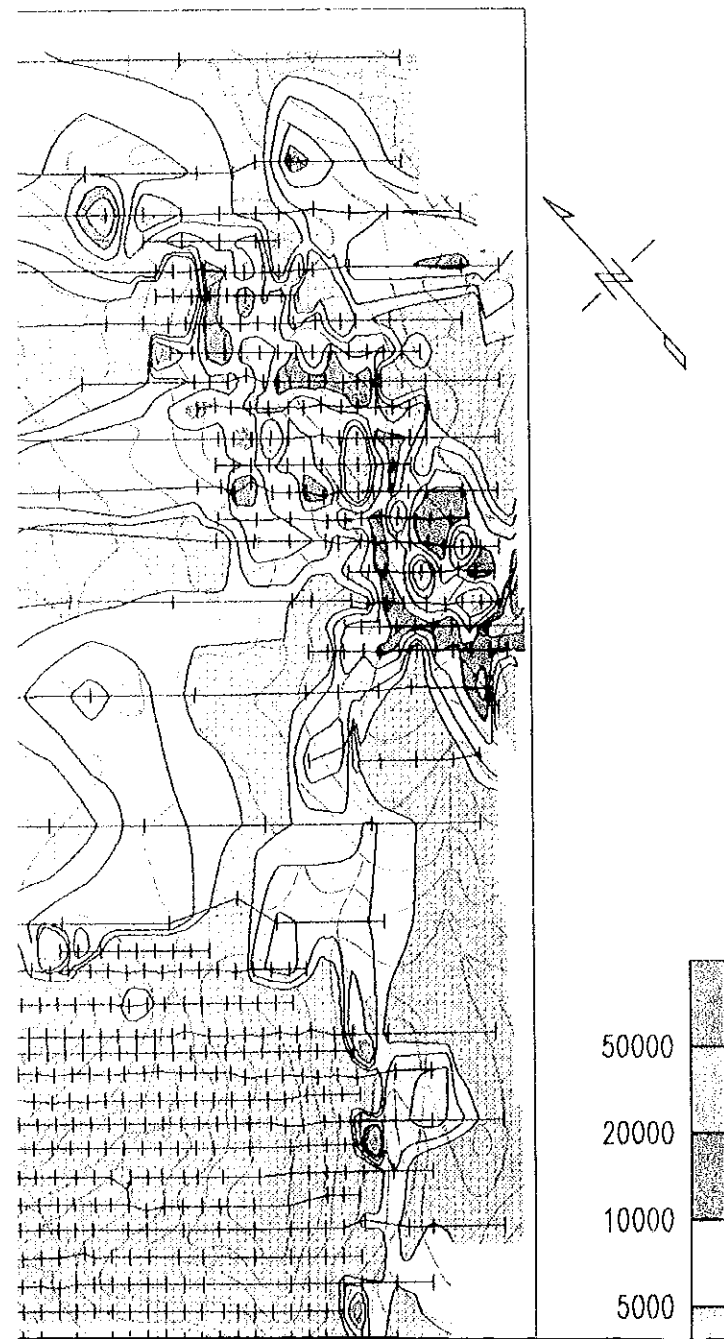
GEOLOGICAL MAP OF THE ORANGE AREA



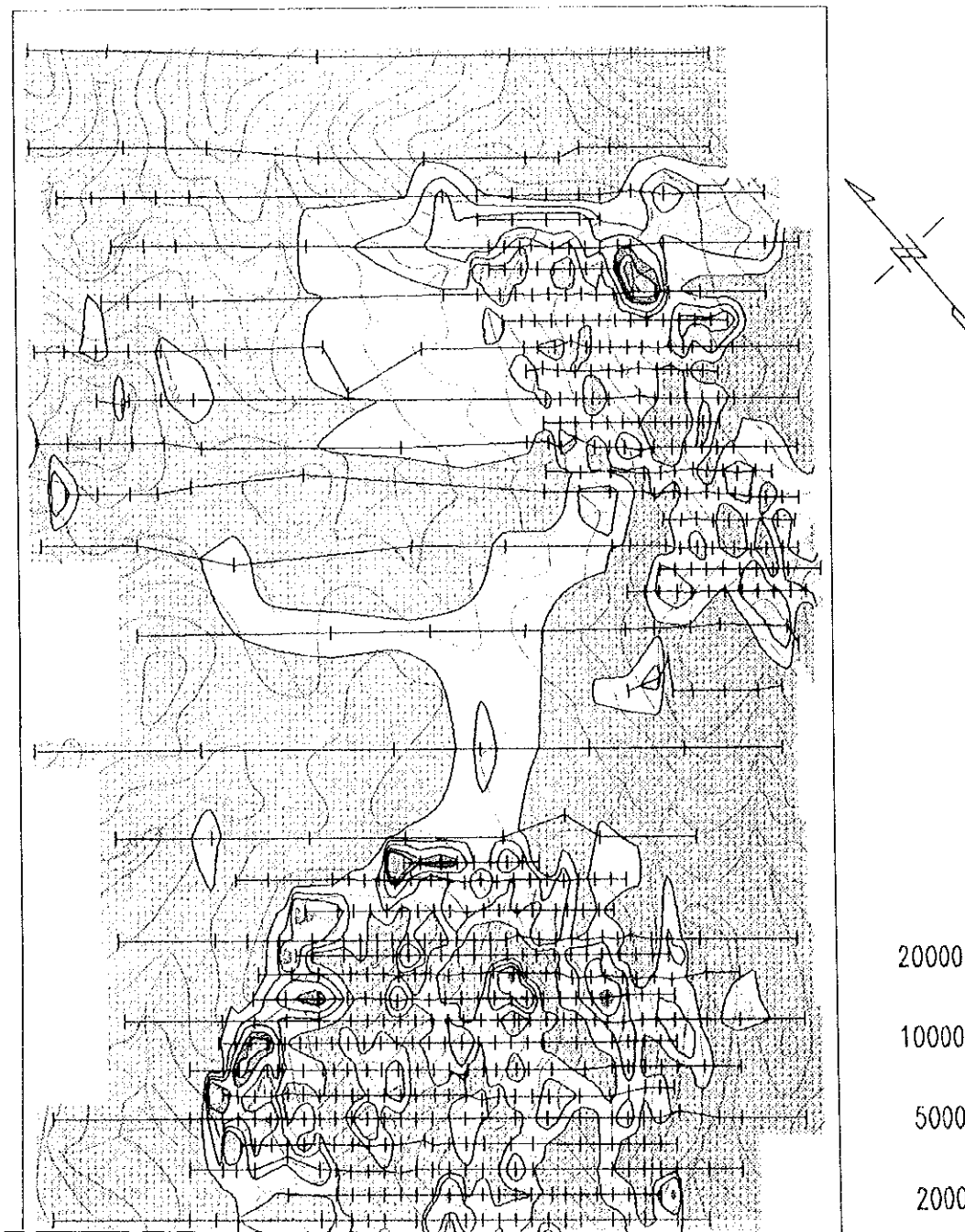
THE ORANGE AND KALKFELD AREAS, SOUTH OF NAMIBIA

THE COOPERATIVE MINERAL EXPLORATION

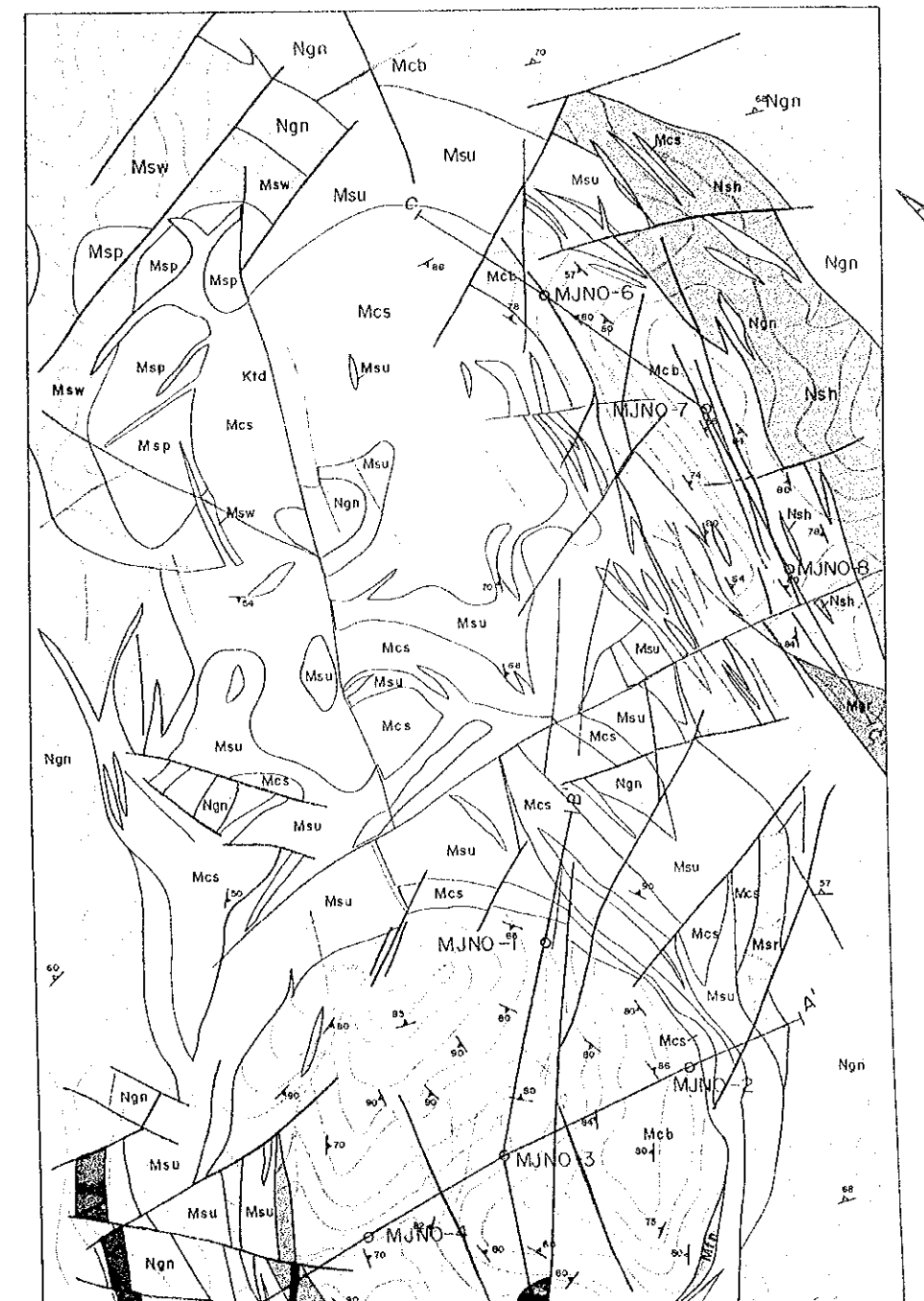
P) DISTRIBUTION OF
RARE EARTH OXIDES (R₂O₃)



RARE EARTH OXIDES (R₂O₃) DISTRIBUTION
OF THE ORANGE AREA



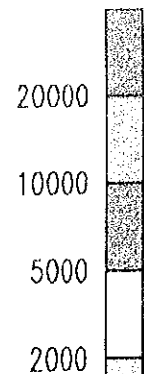
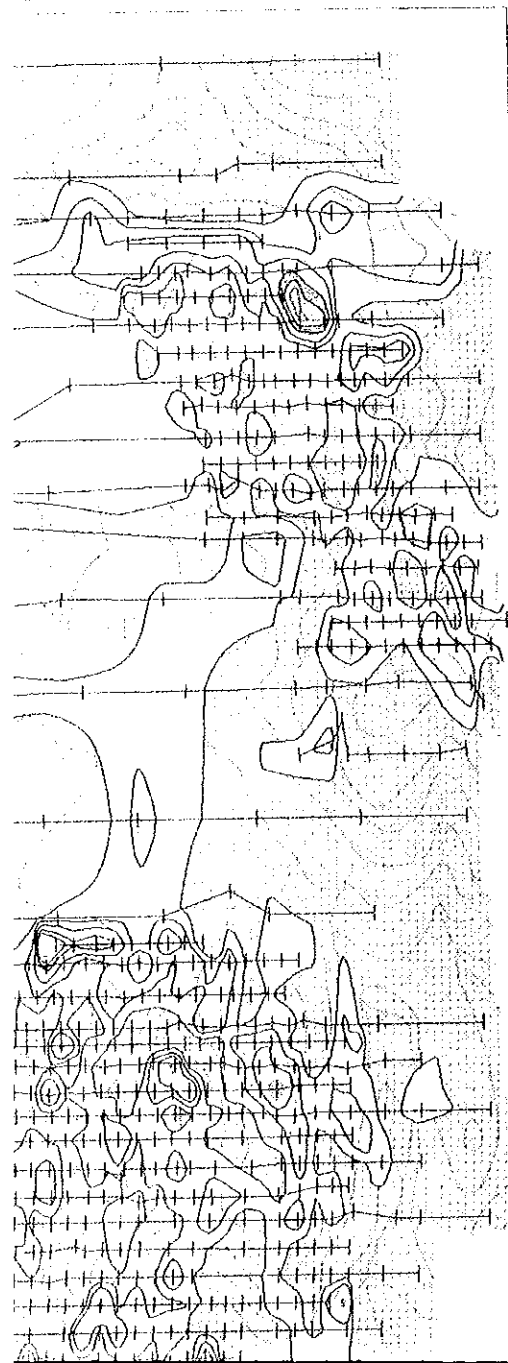
GEOLOGICAL MAP OF THE ORANGE AREA



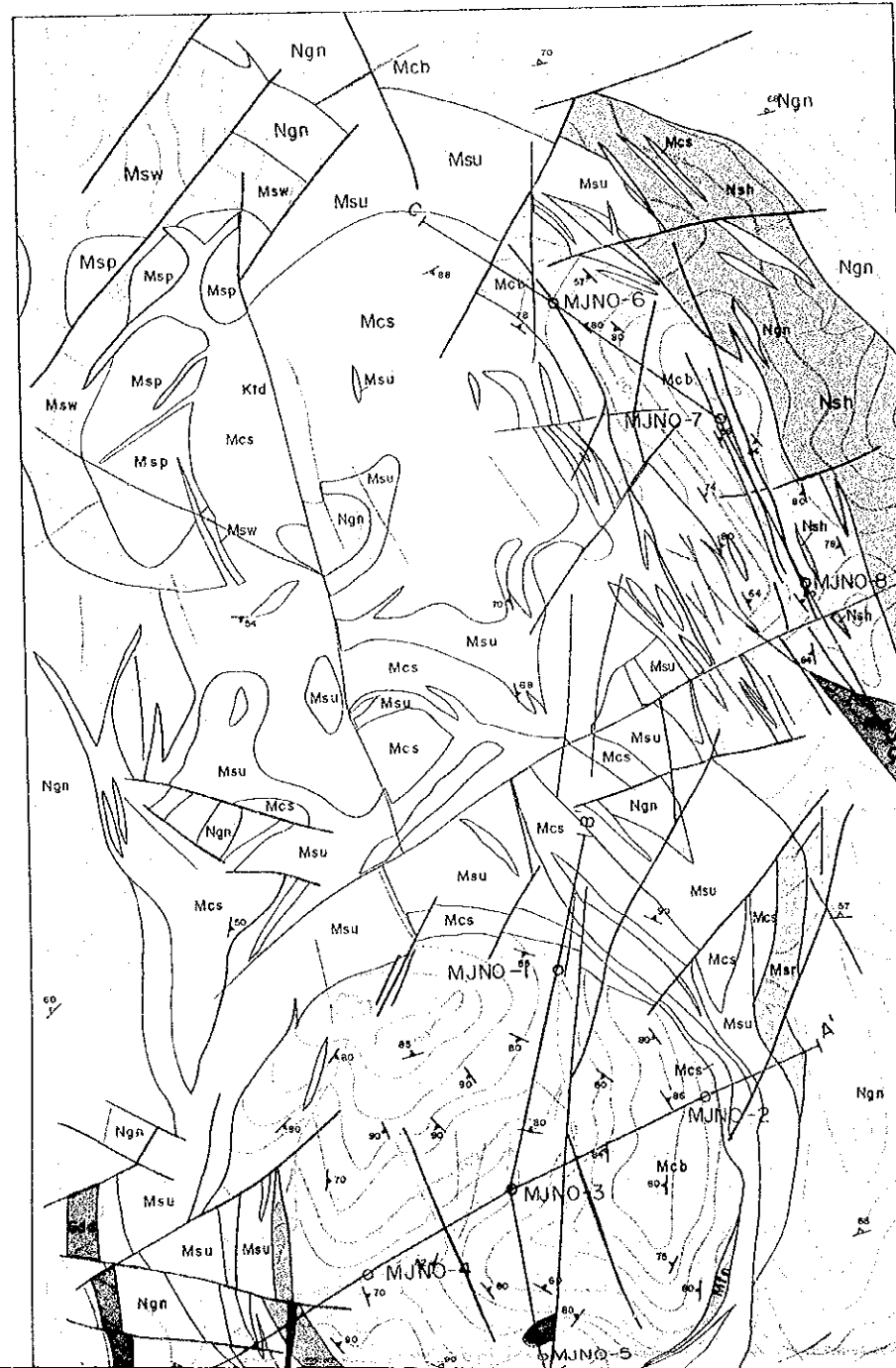
KFELD AREAS,

THE COOPERATIVE MINERAL EXPLORATION BY JICA/MMAJ-GSN, 1993-1994

ES (R2O3) DISTRIBUTION
REA



GEOLOGICAL MAP OF THE ORANGE AREA

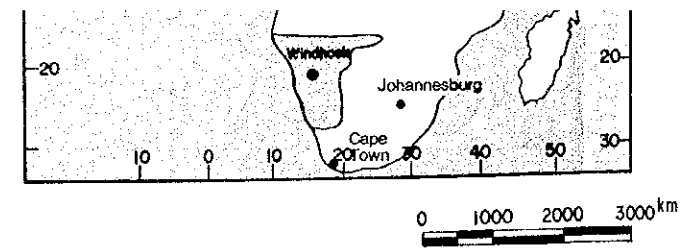


LEGEND

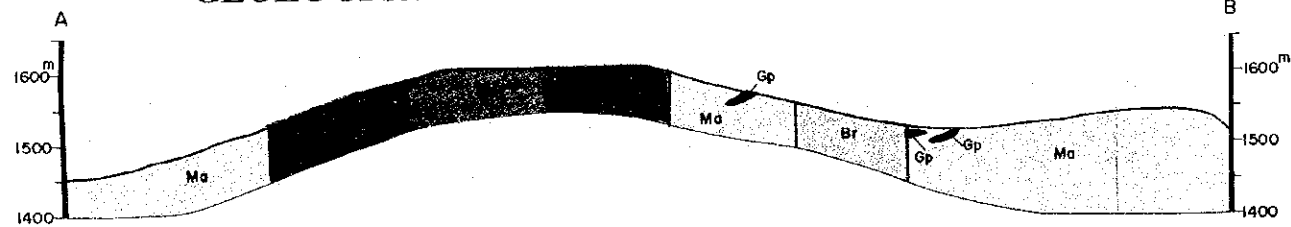
- | | | |
|-------------------------------------------|--|---------------------------------------------|
| Post- to Syn-
Karoo Intrusions | | Trachyte dyke |
| | | Dolerite dyke |
| Marinkas Quelle Carbonatite Complex (MCC) | | Granophyres and Micro-granite |
| | | Carbonatite dyke (calcitic- to ankeritic-) |
| | | Massive fenite |
| | | Ankeritic beforosite |
| | | Syenite (undifferentiated) |
| | | Reddish porphyritic nepheline syenite |
| | | Micro nepheline syenite sill with dip |
| | | Sovite |
| Nama Group | | Porphyritic nepheline syenite (REE bearing) |
| | | Grey-white porphyritic syenite |
| | | Shale, Quartzite and Grit |
| Group | | Dolerite dyke |



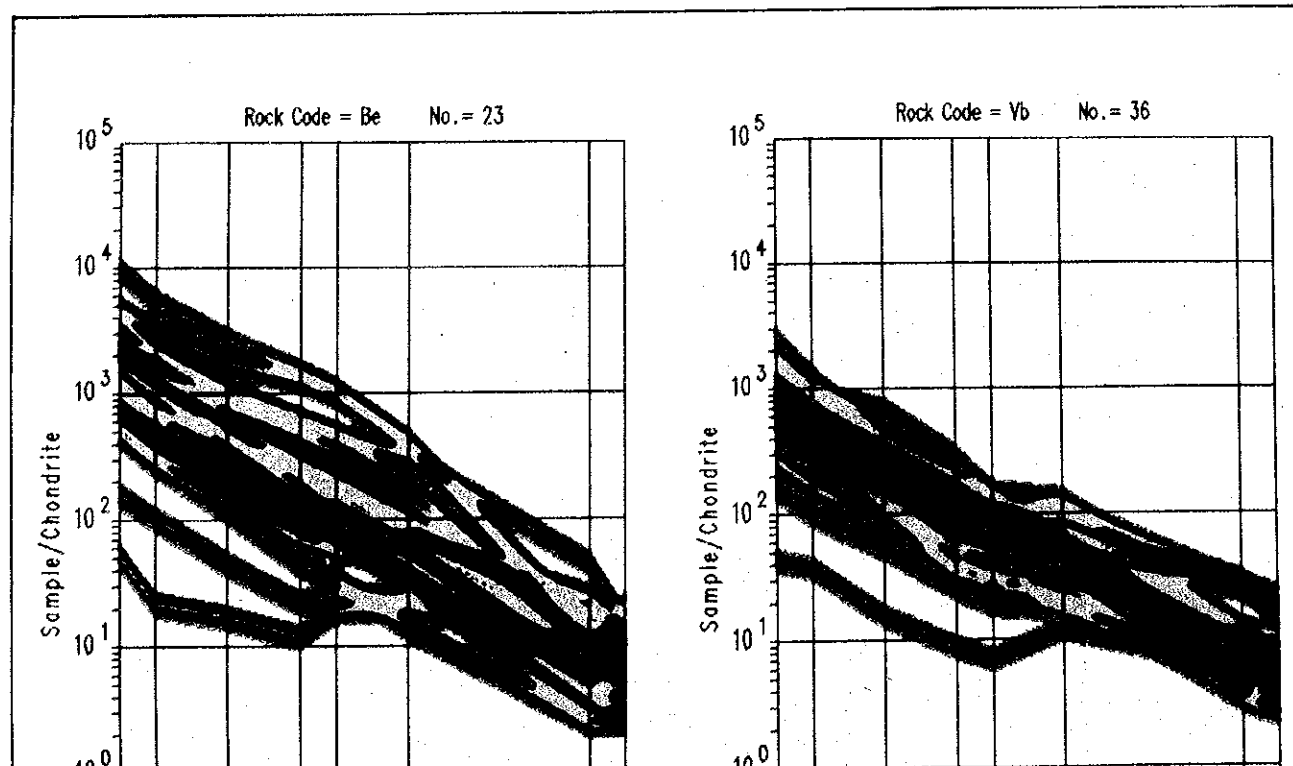
- biotite granite
- marble
- Dip and strike of banding structure in carbonatite
- Dip and strike of foliation in marble
- Fault
- Truck
- Dry river
- Geological section



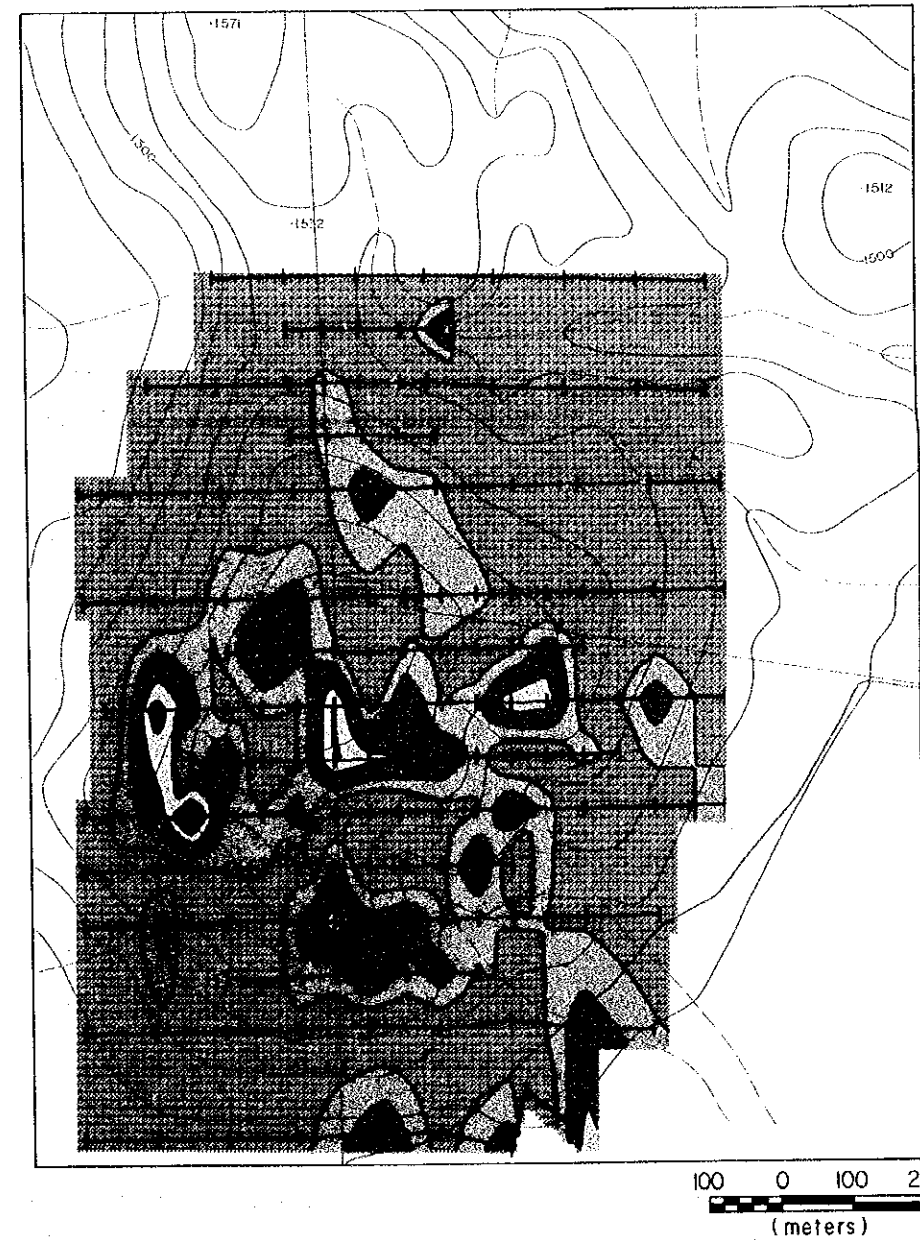
GEOLOGICAL SECTION OF THE KALKFELD AREA



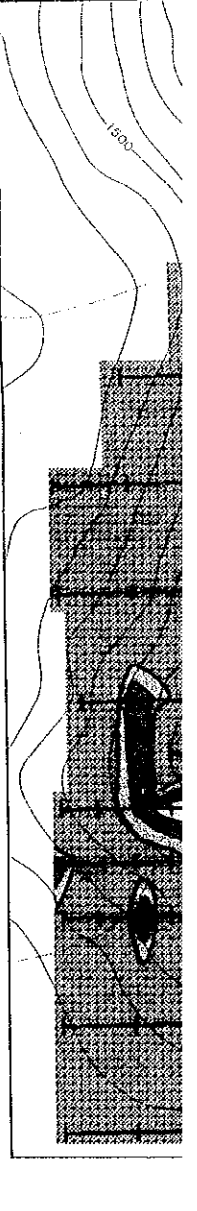
RARE EARTH ELEMENTS PATTERNS OF THE KALKFELD AREA



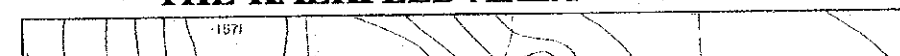
PHOSPHOROUS (P) DISTRIBUTION OF THE KALKFELD AREA



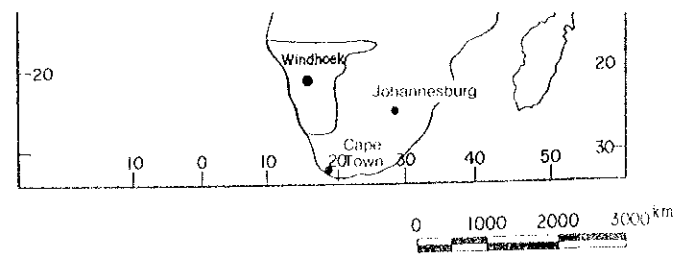
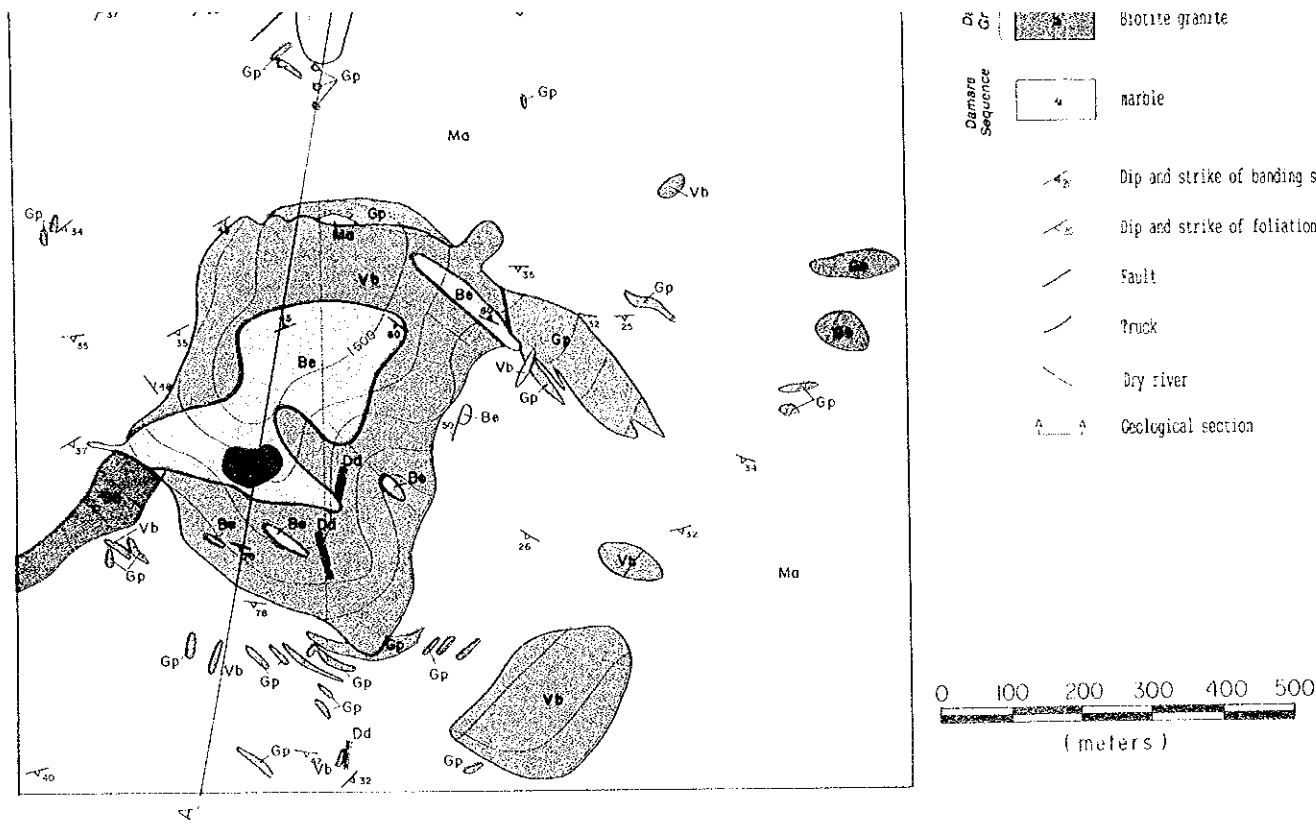
RARE EARTH PATTERNS OF THE KALKFELD AREA



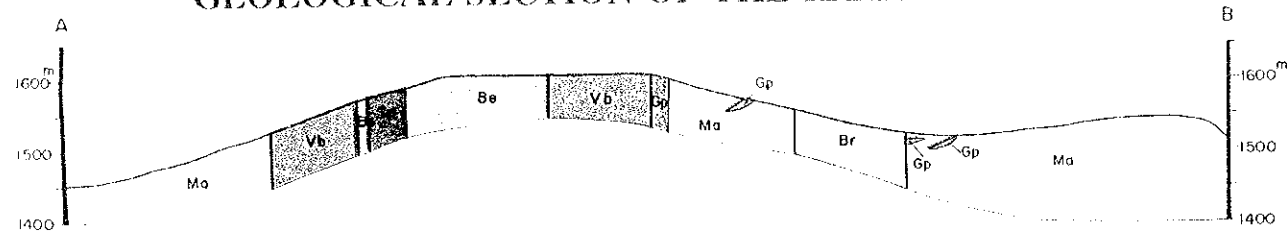
STRONTIUM (Sr) DISTRIBUTION OF THE KALKFELD AREA



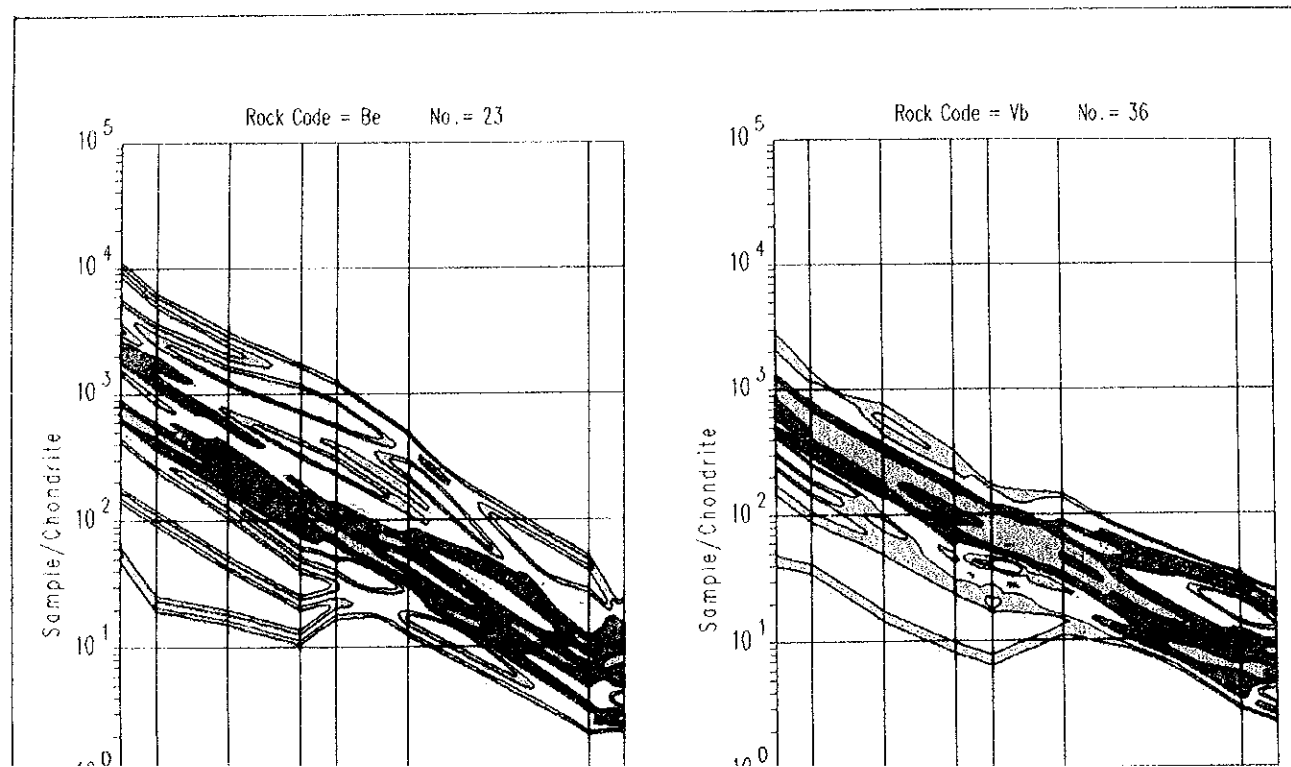
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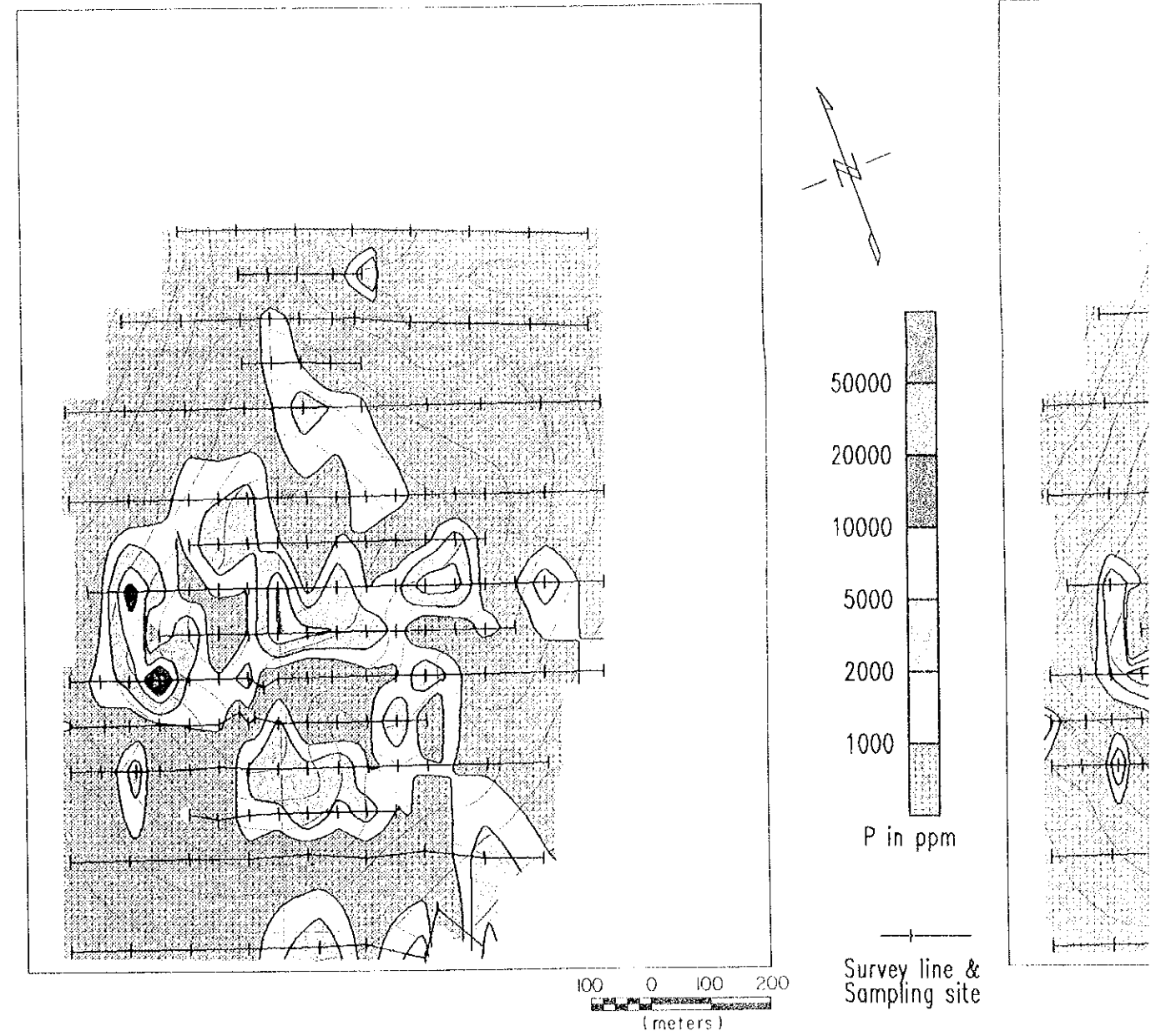
GEOLOGICAL SECTION OF THE KALKFELD AREA



RARE EARTH ELEMENTS PATTERNS OF THE KALKFELD AREA

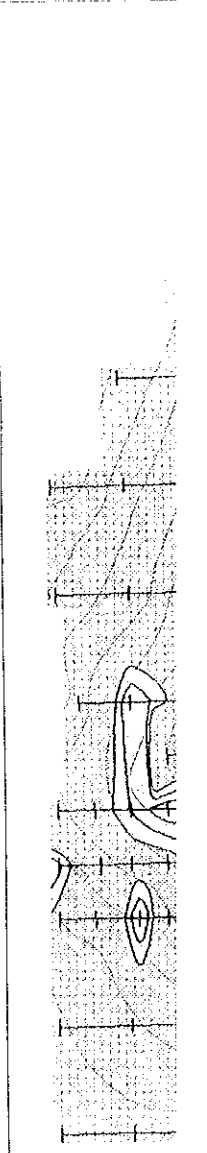


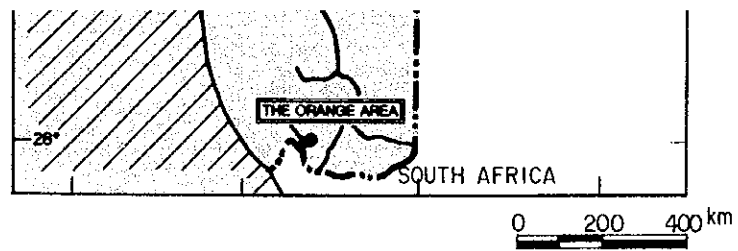
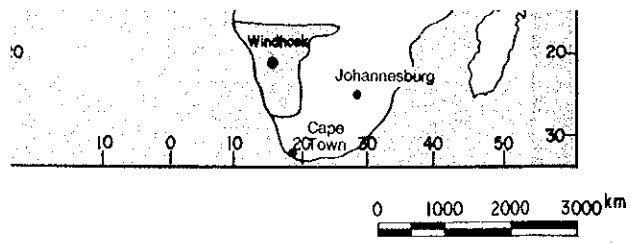
PHOSPHOROUS (P) DISTRIBUTION OF THE KALKFELD AREA



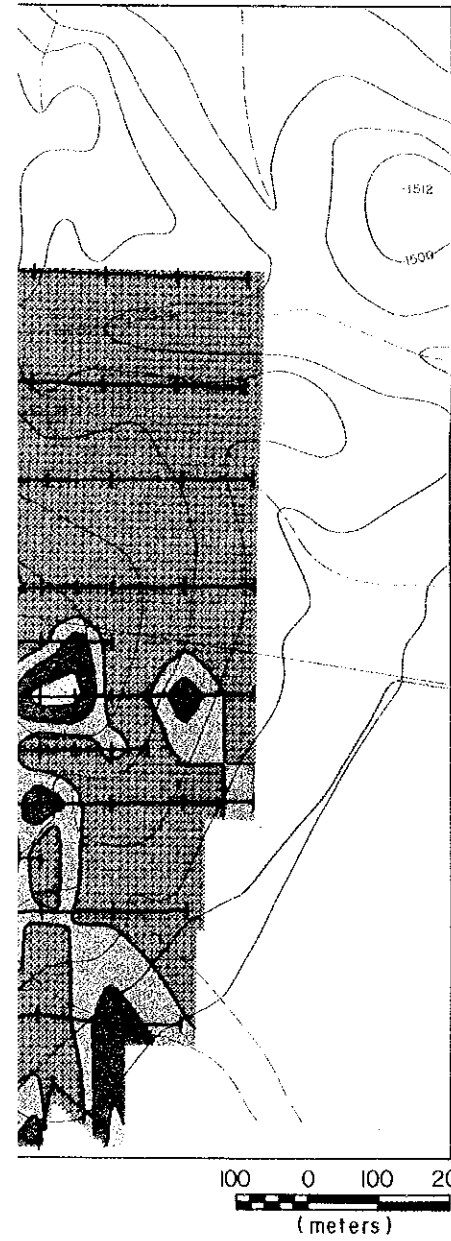
STRONTIUM (Sr) DISTRIBUTION OF THE KALKFELD AREA

RARE EARTH PATTERNS OF THE KALKFELD AREA

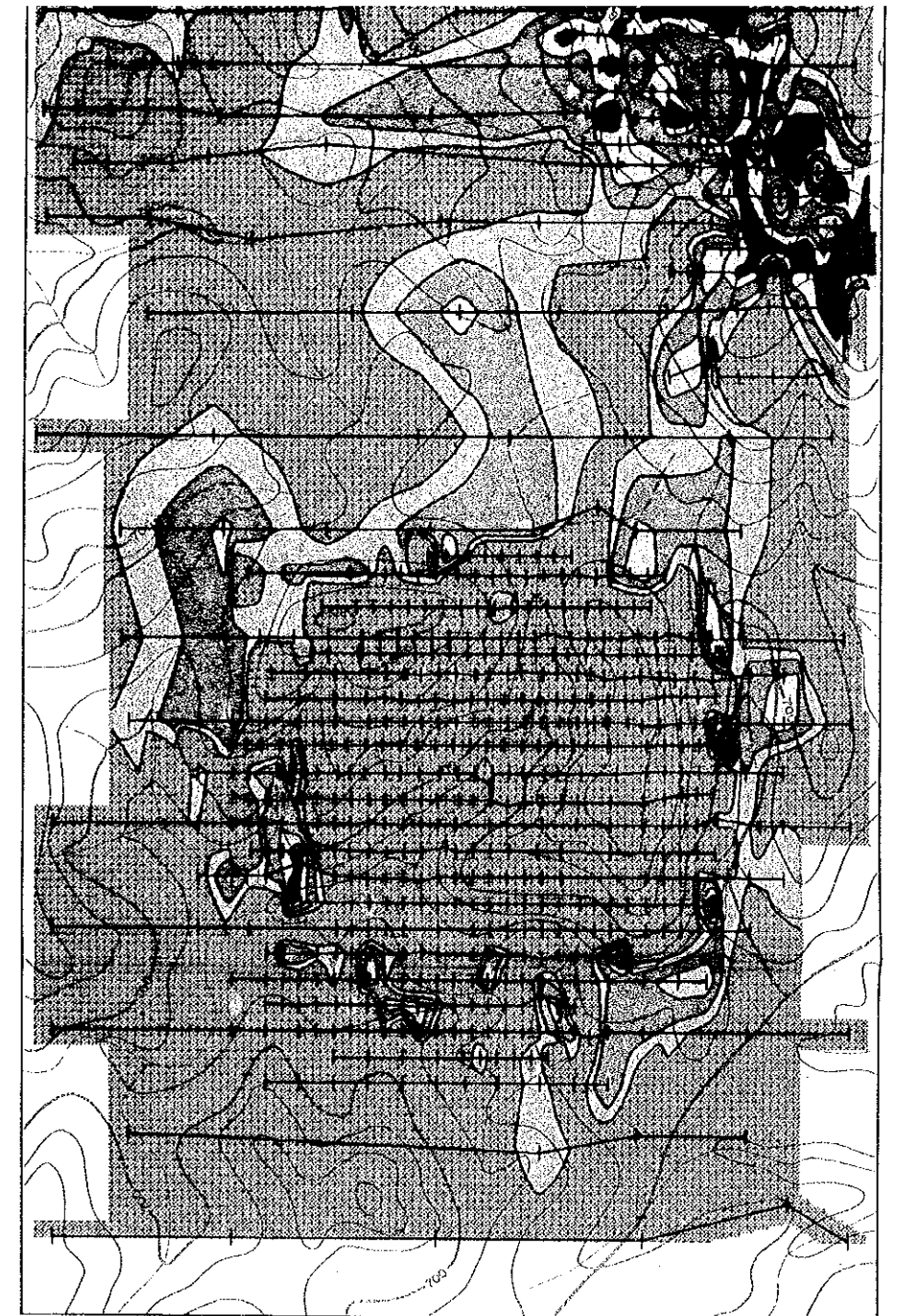
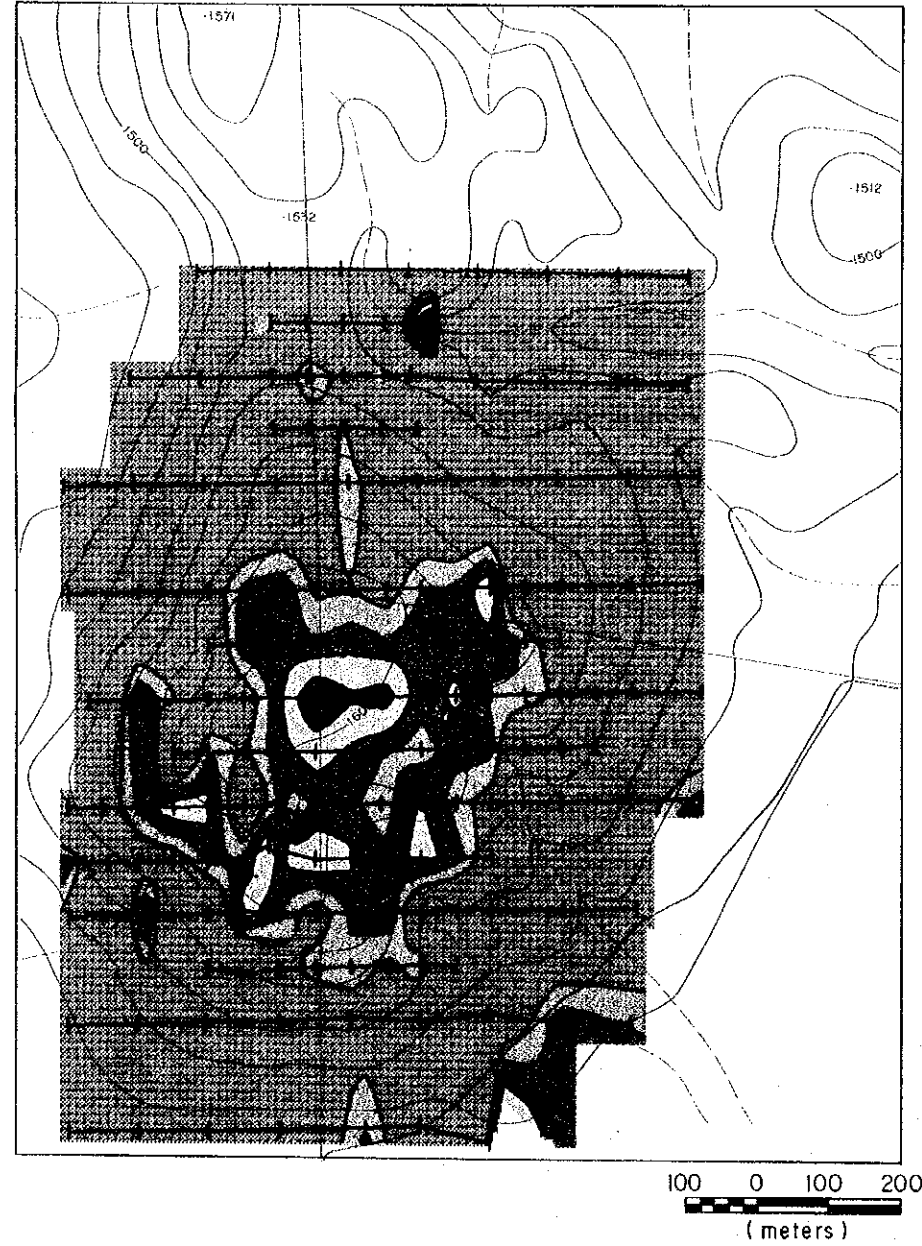




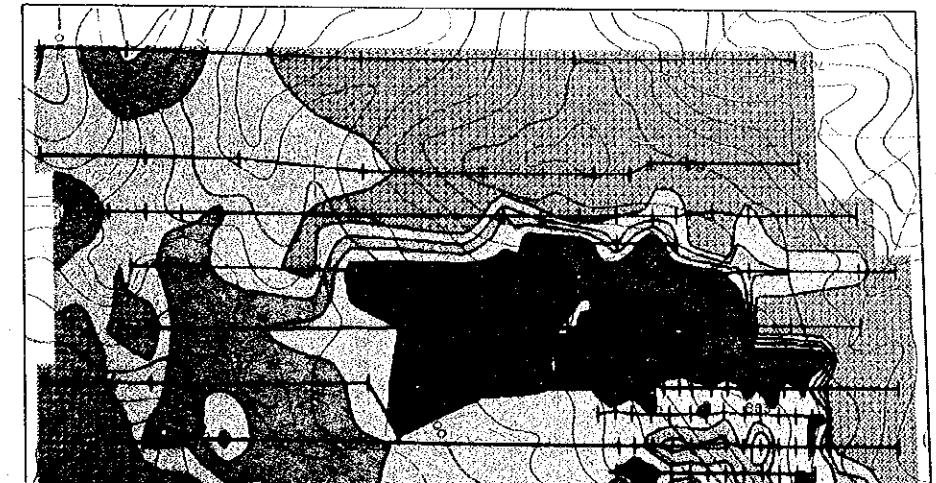
DISTRIBUTUION OF EA



RARE EARTH OXIDES (R2O3) DISTRIBUTION OF THE KALKFELD AREA



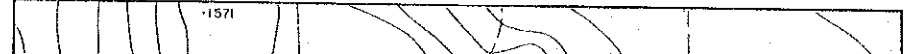
STRONTIUM (Sr) DISTRIBUTION OF THE ORANGE AREA

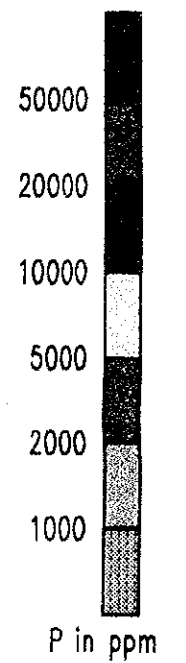
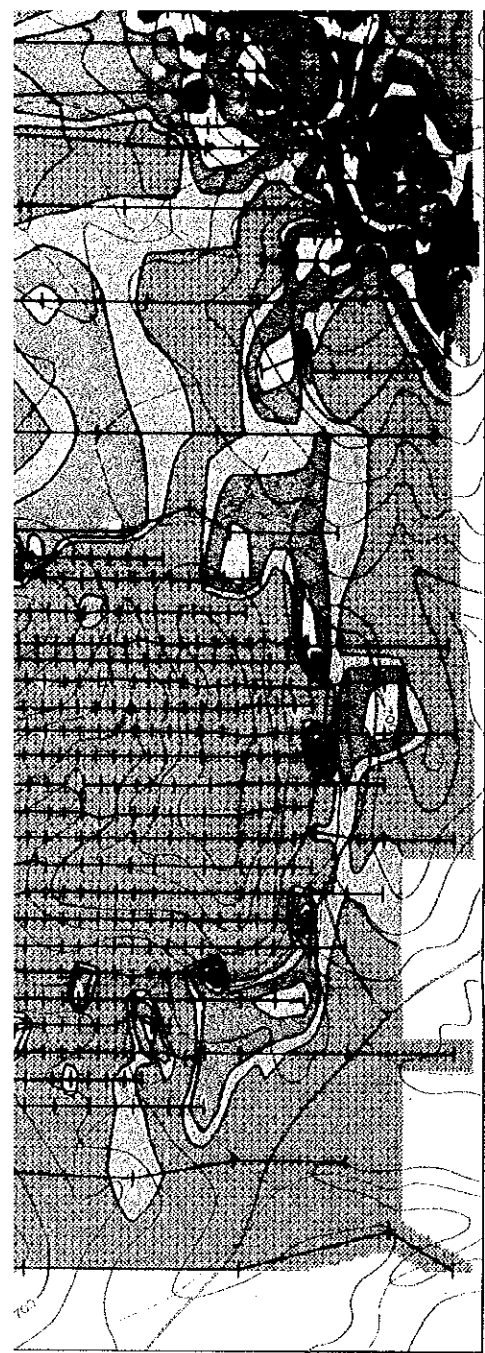


DISTRIBUTION OF AREA

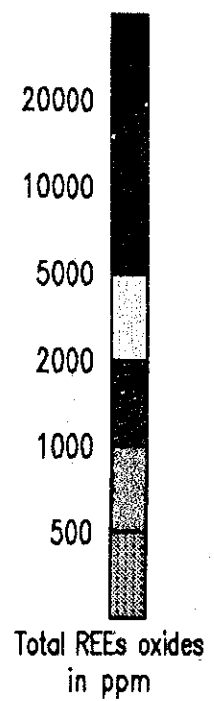
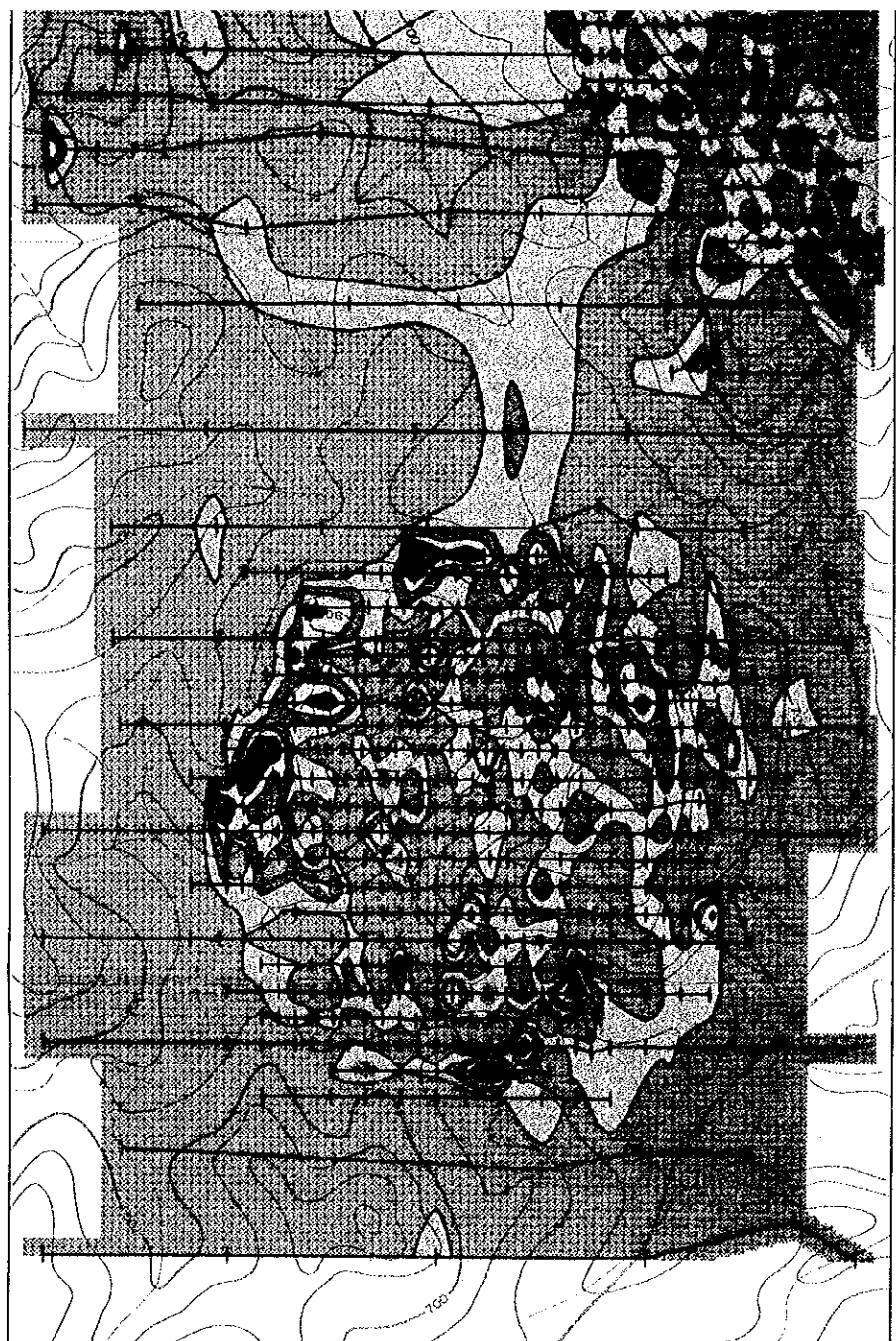


THORIUM (Th) DISTRIBUTUION OF THE KALKFELD AREA

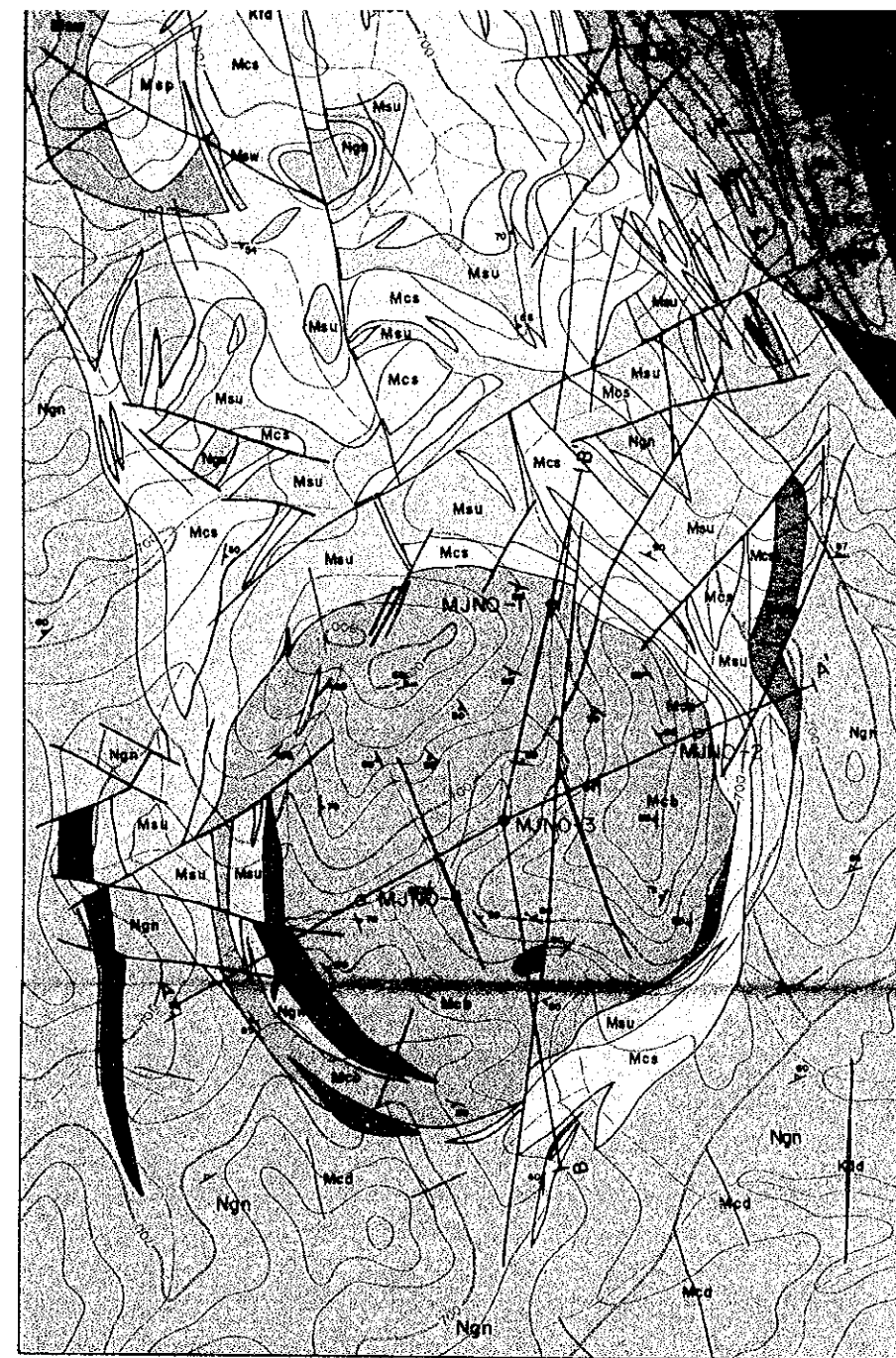




Survey line & Sampling site

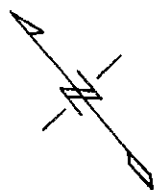
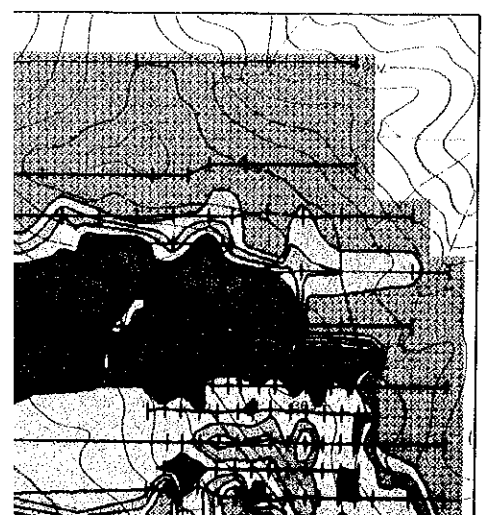


Survey line & Sampling site

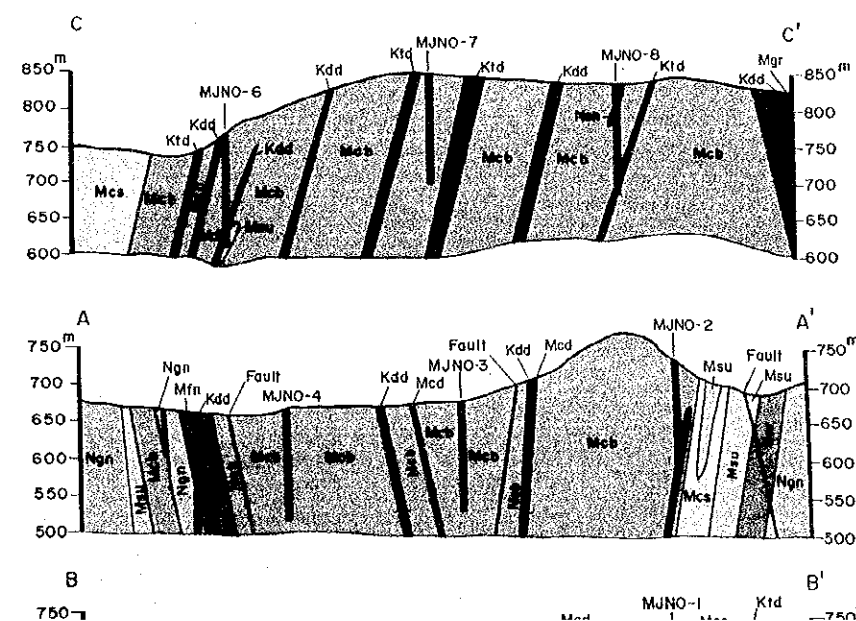
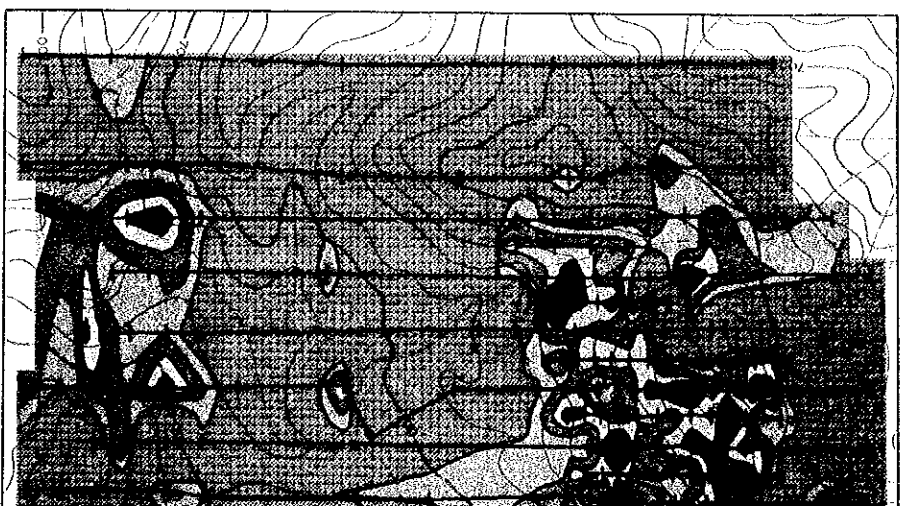


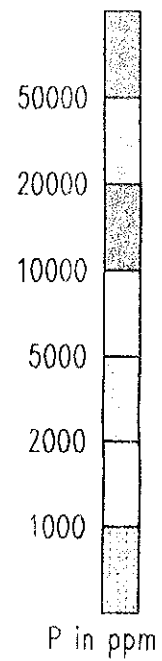
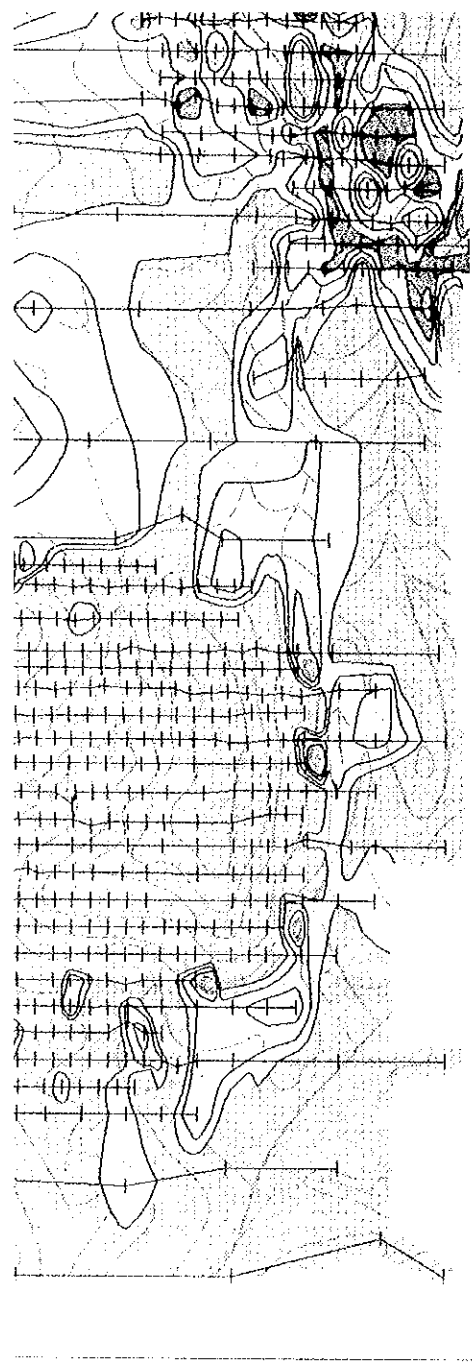
GEOLOGICAL SECTIONS OF THE ORANGE AREA

DISTRIBUTION OF AREA



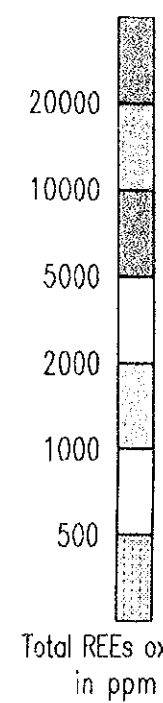
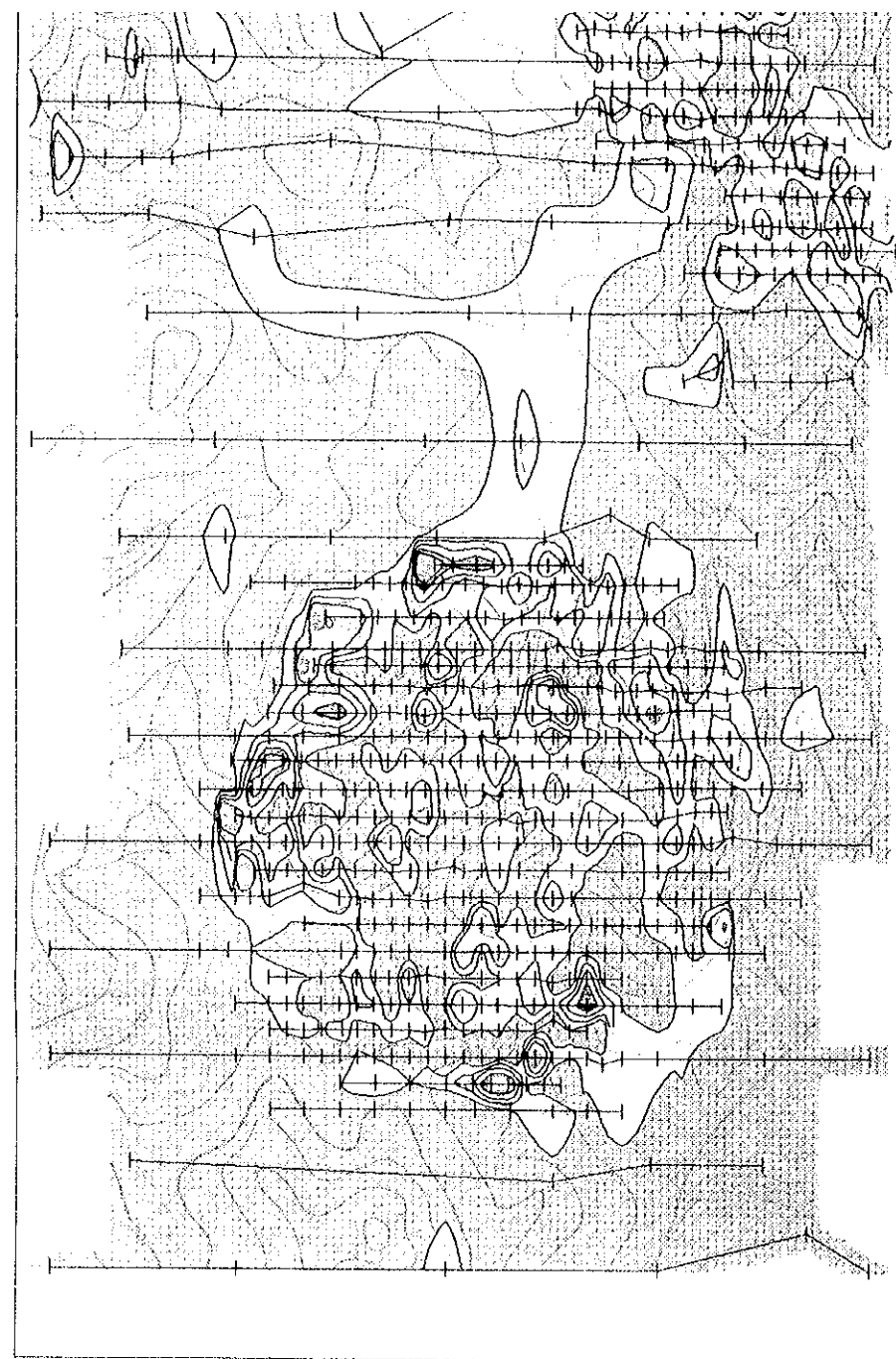
NIBIUM (Nb) DISTRIBUTION OF THE ORANGE AREA





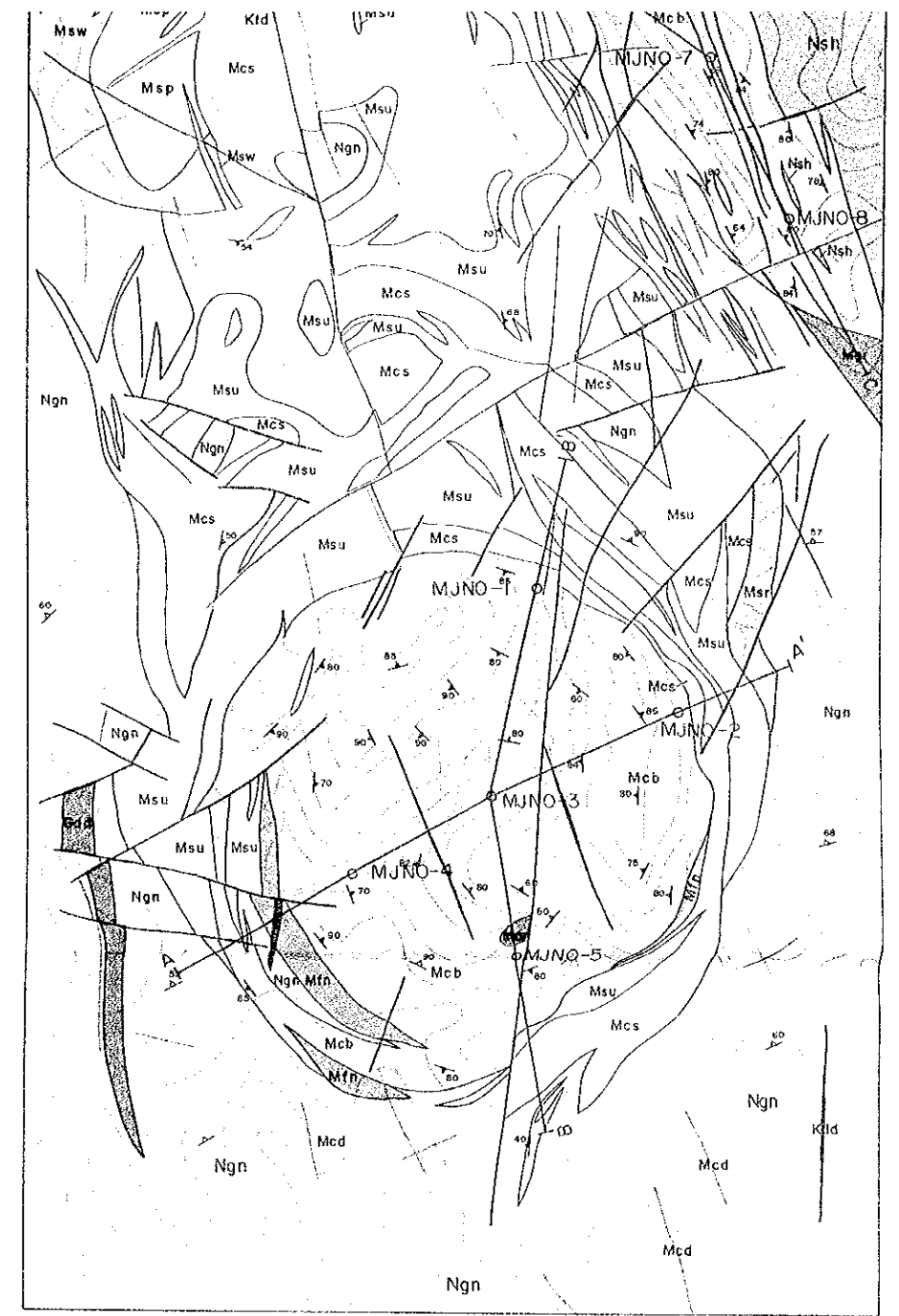
Survey line & Sampling site

100 0 100 200
(meters)

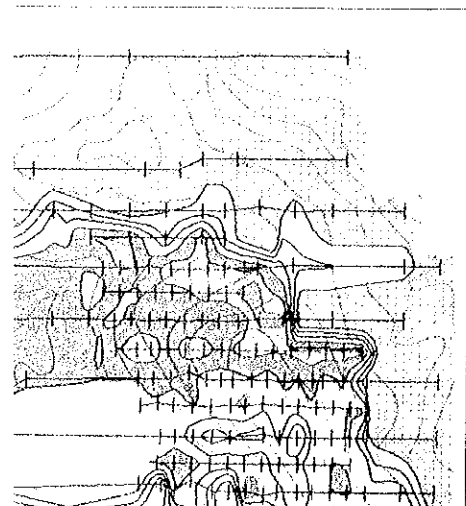


Survey line & Sampling site

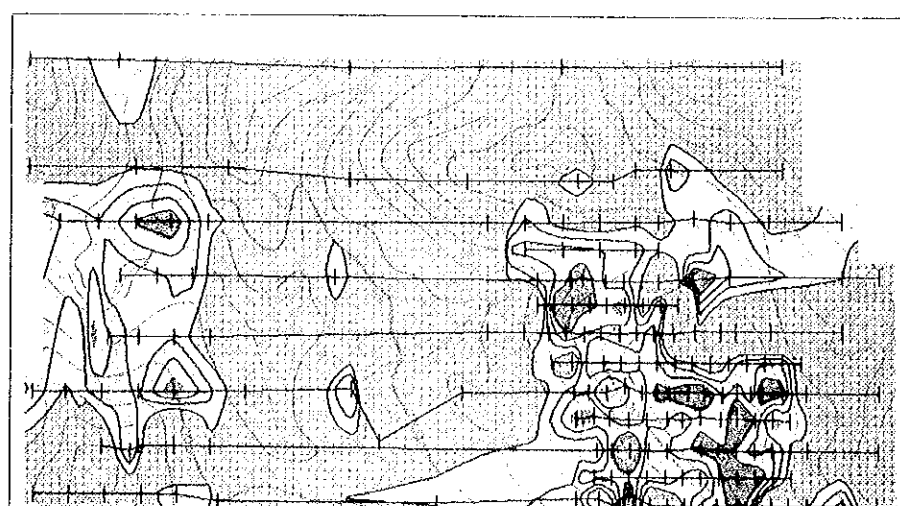
100 0 100 200
(meters)



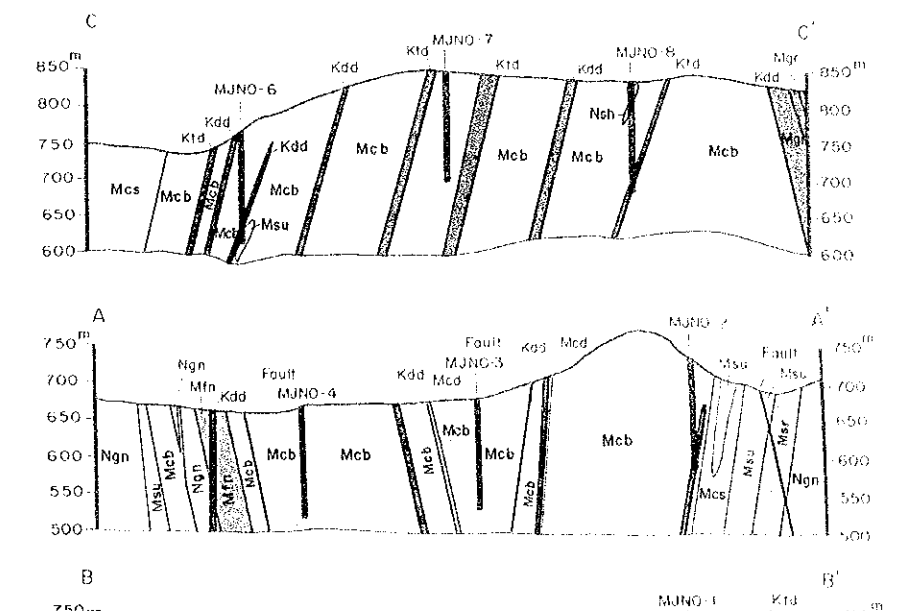
DISTRIBUTION OF REA

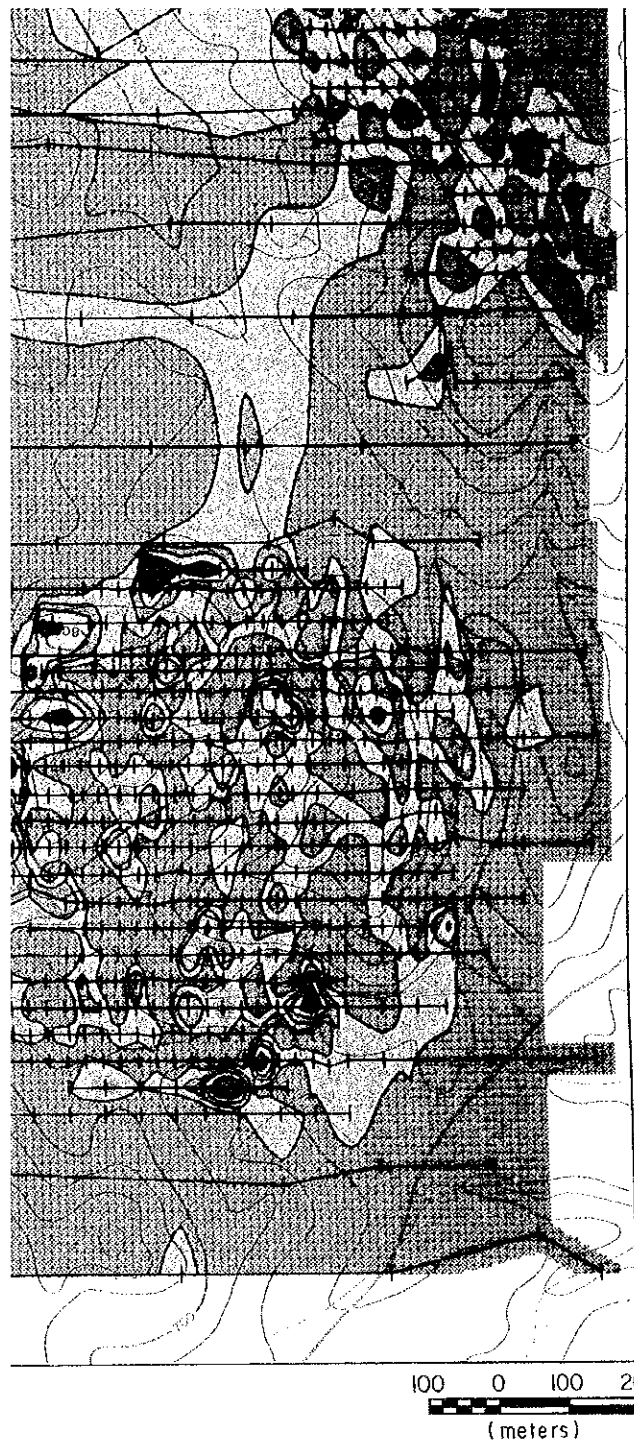


NIONIUM (Nb) DISTRIBUTION OF THE ORANGE AREA

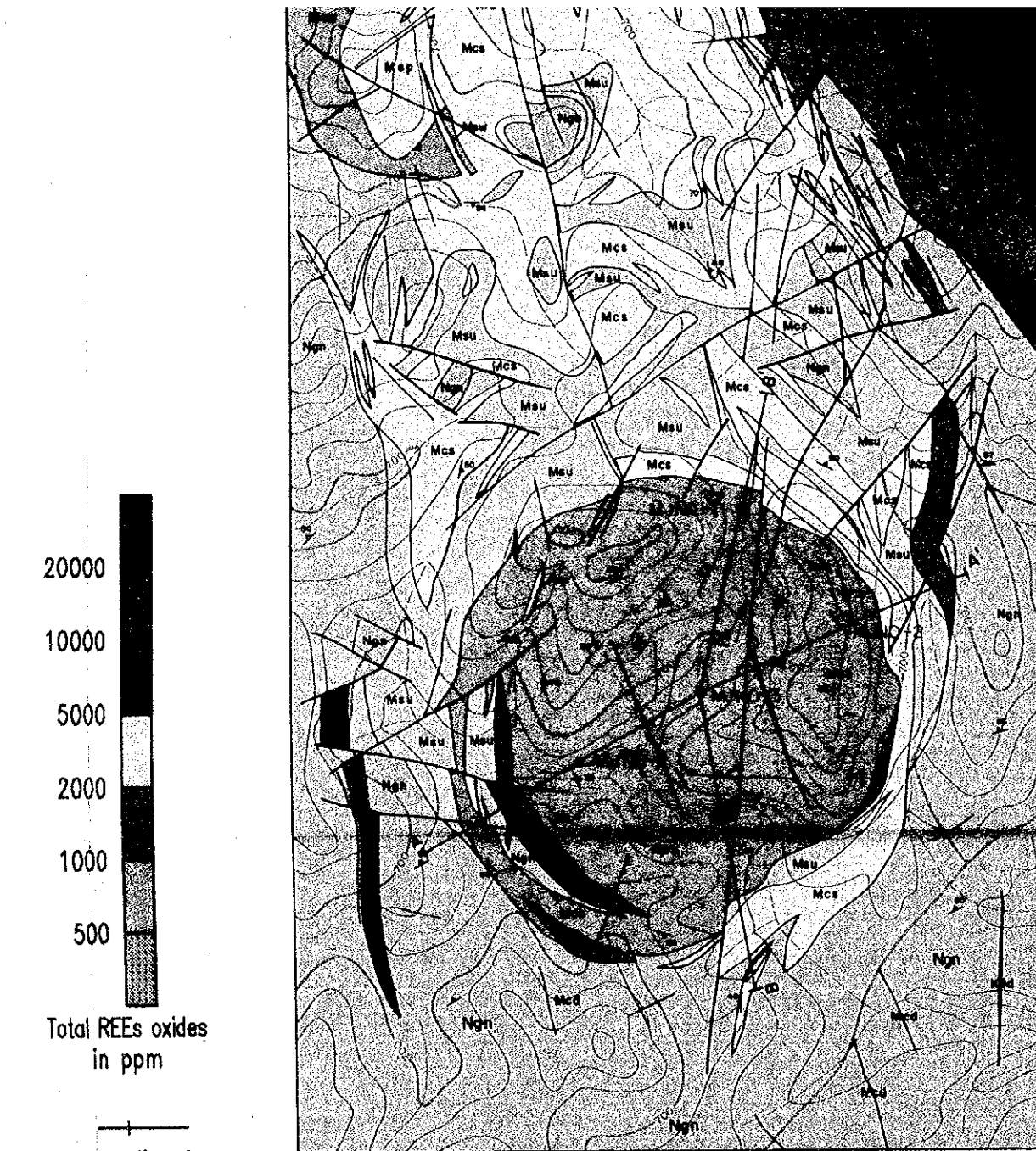
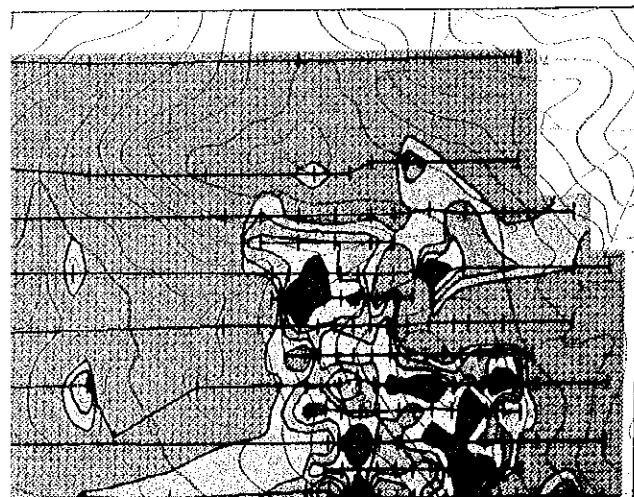


GEOLOGICAL SECTIONS OF THE ORANGE AREA

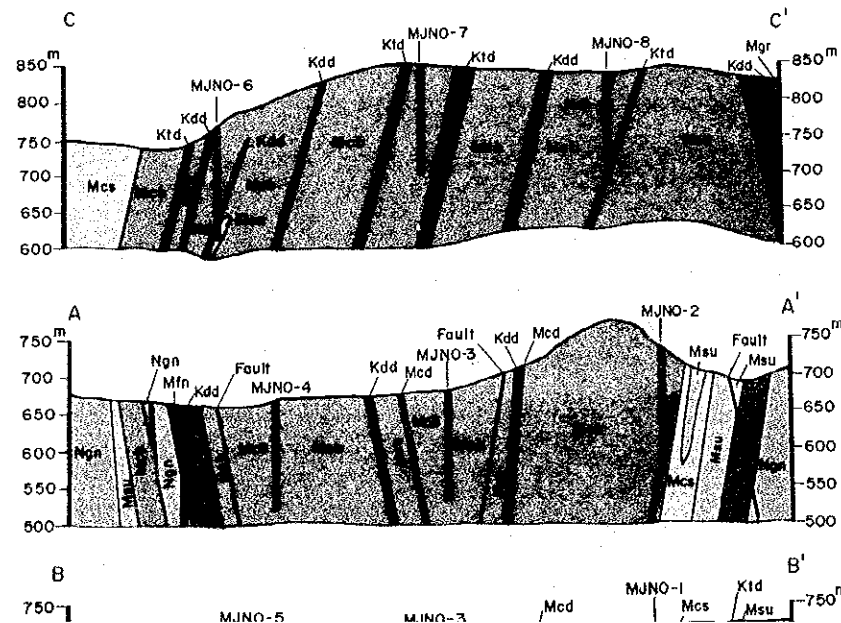




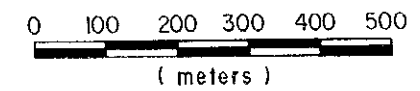
1 (Nb) DISTRIBUTION OF ORANGE AREA

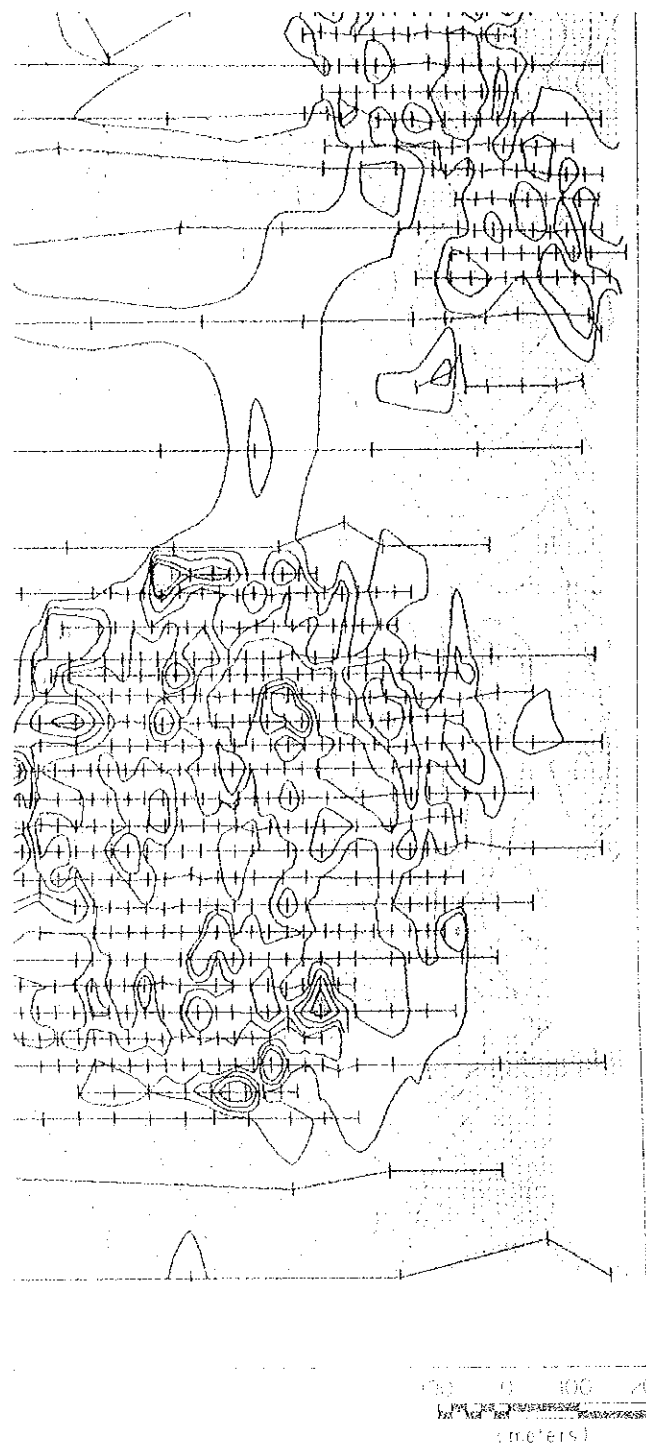


GEOLOGICAL SECTIONS OF THE ORANGE AREA

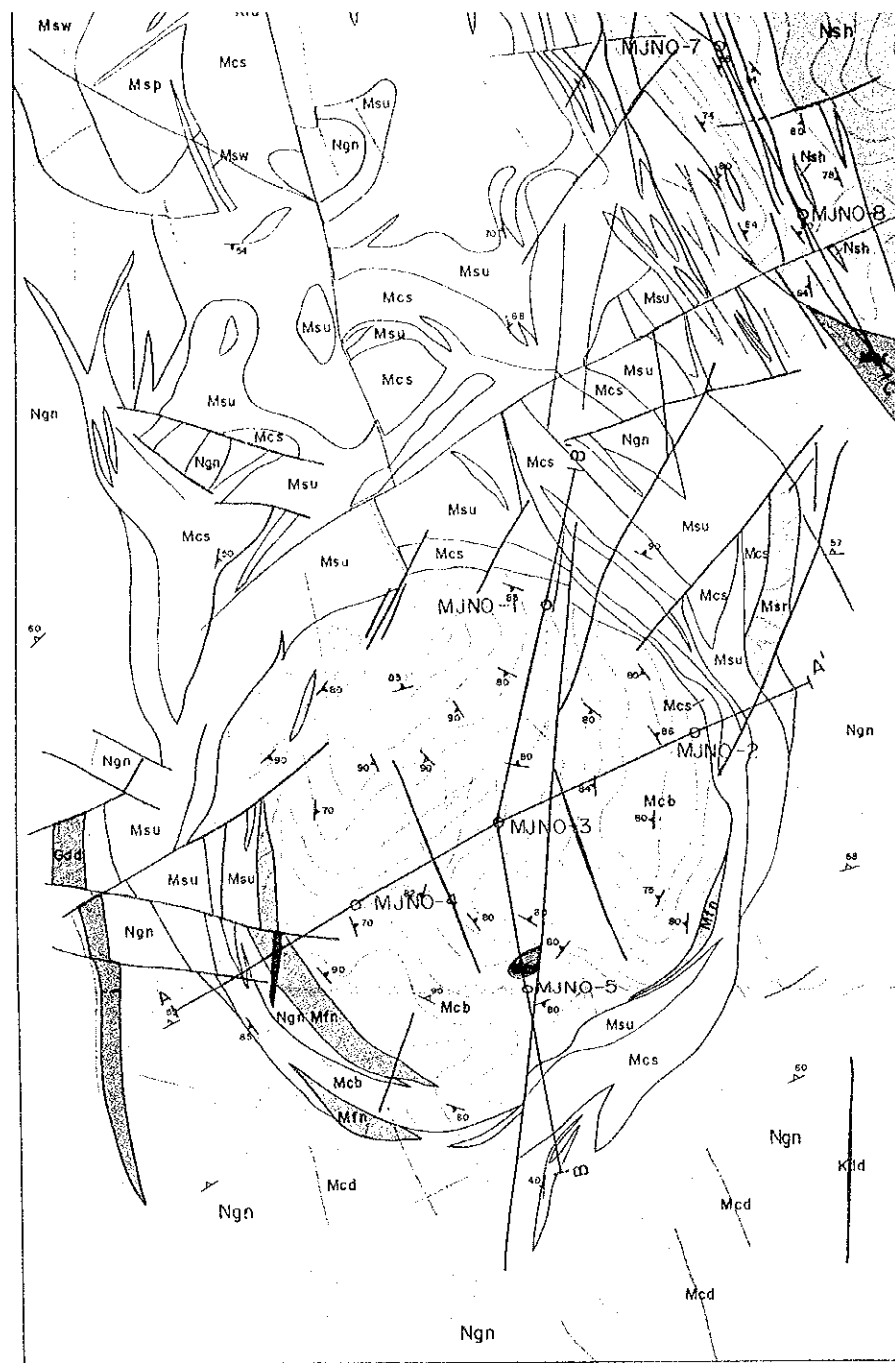
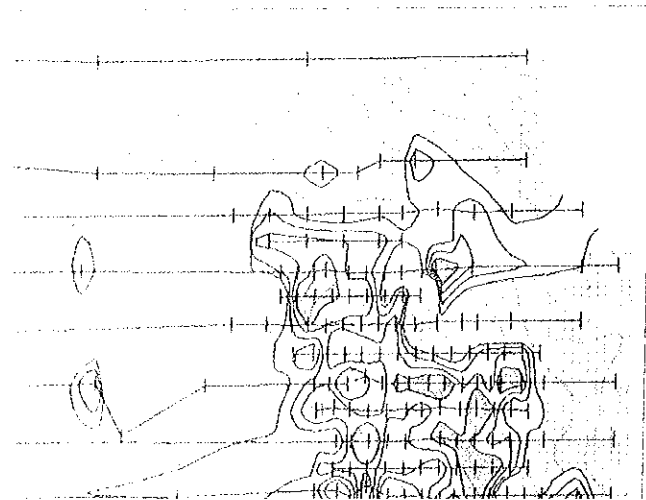


- Post- to Syn-Karoo Intrusions
 - Trachyte dyke
 - Dolerite dyke
- Marinkas Queille Carbonatite Complex (MQC)
 - Granophyres and Micro-granite
 - Carbonatite dyke (calcitic- to ankeritic-)
 - Massive fenite
 - Ankeritic beforosite
 - Syenite (undifferentiated)
 - Reddish porphyritic nepheline syenite
 - Micro nepheline syenite sill with dip
 - Sovite
 - Porphyritic nepheline syenite (REE bearing)
 - Grey-white porphyritic syenite
- Nama Group
 - Shale, Quartzite and Grit
- Gariap Group
 - Dolerite dyke
- Namaqua Metamorphic Complex
 - Quartz-feldspar gneiss
- Fault
- Strike and Dip and strike of banding structure of the MQC
- Strike and Dip of foliation and cleavage in gneiss
- Truck
- Dry river
- Geological section
- Drilling site

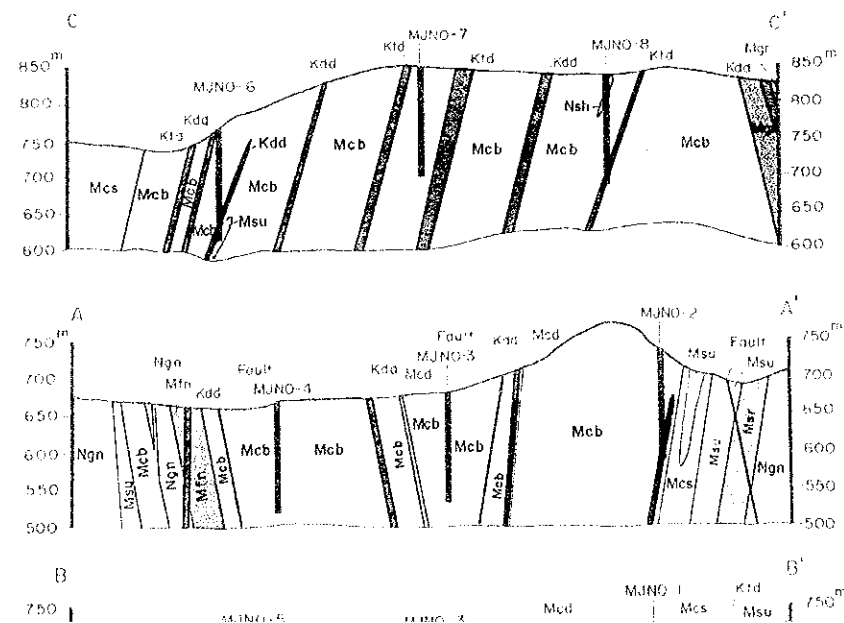




(ND) DISTRIBUTION OF ORANGE AREA



GEOLOGICAL SECTIONS OF THE ORANGE AREA



- Post- to Syn-Karoo Intrusions
 - Trachyte dyke
 - Dolerite dyke
- Marinkas Quelle Carbonatite Complex (MQC)
 - Granophyres and Micro-granite
 - Carbonatite dyke (calcitic- to ankeritic-)
 - Massive fenite
 - Ankeritic beforite
 - Syenite (undifferentiated)
 - Reddish porphyritic nepheline syenite
 - Micro nepheline syenite sill with dip
 - Sovite
 - Porphyritic nepheline syenite (REE bearing)
 - Grey-white porphyritic syenite
- Nama Group
 - Shale, Quartzite and Grit
- Gariep Group
 - Dolerite dyke
- Hamaqua Metamorphic Complex
 - Quartz-feldspar gneiss
- Structural Features
 - Fault
 - Strike and Dip and strike of banding structure of the MQC
 - Strike and Dip of foliation and cleavage in gneiss
 - Truck
 - Dry river
 - Geological section
 - Drilling site

