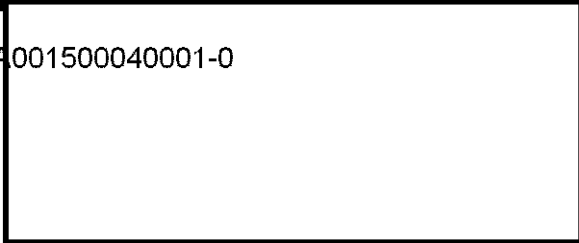


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COPY OF

TROPOSCATTER FACILITIES

TYPES AND DEPLOYMENT, USSR

1. SIGNIFICANCE: DEPLOYMENT AND COMPARISON OF TYPE I AND II TROPOSCATTER FACILITIES IN THE USSR.

2. REMARKS: FIFTEEN TROPOSCATTER FACILITIES OF 2 DIFFERENT TYPES HAVE BEEN IDENTIFIED IN THE USSR ON KH PHOTOGRAPHY. THE EARLIER IDENTIFIED CONFIGURATION, CONSISTING OF HORIZONTALLY CYLINDRICAL ANTENNA REFLECTORS, HAS BEEN DESIGNATED "TYPE I" AND HAS BEEN OBSERVED AT MURMANSK (2 FACILITIES) AND MYS SERDTSE-KAMEN. THE LATER IDENTIFIED CONFIGURATION, CONSISTING OF "BILLBOARD" - TYPE ANTENNA REFLECTORS, HAS BEEN DESIGNATED "TYPE II" AND HAS BEEN OBSERVED AT YENISEYSK, OKHOTSK, YAKUTSK, IGARKA, SANGAR, ZHIGANSK, MAGADAN, AMDERMA, TIKSI, VORKUTA, ANADYR, AND TALDOM. EXCEPT FOR THE AMDERMA AND TALDOM FACILITIES, THE "TYPE II" FACILITIES ARE IN THE EARLY-TO-MID STAGES OF CONSTRUCTION.

THE TROPOSCATTER FACILITIES IDENTIFIED TO DATE HAVE BEEN DEPLOYED IN APPROXIMATELY THE SAME MANNER AS SOVIET AIR WARNING FACILITIES AND COULD SERVICE THIS NETWORK.

3. LOCATION: SEE ATTACHED MAP.

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GROUP 1
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downgrading and
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5. FIRST IDENTIFICATION:

MURMANSK -
SANGAR --
YENISEYSK
AMDERMA --



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6. NEGATION DATE: NONE

7. SUBSEQUENT COVERAGE:

MURMANSK
SANGAR --
YENISEYSK
AMDERMA -- NONE



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8. DIMENSIONS/SPECIFICATIONS:

MURMANSK (TYPE I): MESH REFLECTOR - APPROXIMATELY 225 FT LONG.

AMDERMA: ANTENNA - 140 FT TOTAL HEIGHT

ANTENNA REFLECTOR - 70 FT HEIGHT, 60 FT WIDTH

FEED TOWER - 55 FT HEIGHT

ORIENTATION OF REFLECTORS



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THE AMDERMA FACILITY IS THE ONLY ONE OF TYPE II TO DATE WITH THE ANTENNA ERECTED IN OPERATING, AND THUS MEASURABLE, POSITION.

9. READOUT: THE "TYPE I" TROPOSCATTER FACILITY # 1 AT MURMANSK CONSISTS OF A SINGLE HORIZONTAL PARABOLIC CYLINDRICAL WIRE MESH REFLECTOR.

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THE "TYPE II" SUSPECT TROPOSCATTER FACILITY AT SANGAR IS IN THE EARLY STAGES OF CONSTRUCTION. ACTIVITY CONSISTS OF 16 CIRCULAR EXCAVATIONS IN 4 ROWS OF 4 EXCAVATIONS EACH (SUSPECT ANTENNA FOOTINGS); 2 LARGE, RECTANGULAR FLAT-ROOFED CONTROL/SUPPORT BUILDINGS; APPROXIMATELY 10 SMALL BUILDINGS NEAR THE EXCAVATIONS; AND SUPPORT VANS.

THE PROBABLE TROPOSCATTER FACILITY OF "TYPE II" CONFIGURATION AT YENISEYSK IS IN THE MID-STAGE OF CONSTRUCTION. THE OPERATIONS AREA CONSISTS OF 1 PROBABLE TRANSMITTING BUILDING WITH A CUPOLA-TYPE STRUCTURE ON ITS ROOF, FLANKED ON EACH SIDE BY A LARGE PROBABLE TROPOSCATTER ANTENNA UNDER CONSTRUCTION WHICH IS COMPOSED OF VERTICAL AND HORIZONTAL STEEL MULLIONS ANCHORED WITH LARGE CONCRETE FOOTINGS AND PIERS. AT LEAST 8 OTHER ANCHORS ARE LOCATED TO THE NNW. AREA ALSO CONTAINS A LARGE SUPPORT BUILDING, NUMEROUS GROUND SCARS AND CRATES, AND AT LEAST 6 SUPPORT VANS.

THE "TYPE II" TROPOSCATTER FACILITY AT AMDERMA, IN LATE STAGES OF CONSTRUCTION, CONTAINS 2 REFLECTORS, A TRANSMITTING BUILDING, 3 CONTROL/SUPPORT BUILDINGS, AT LEAST 5 VANS, EXTENSIVE GROUND SCARRING AND EXCAVATION WORK, AND 2 FEED TOWERS.

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(MURMANSK

(SANGAR --

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(AMDERMA -

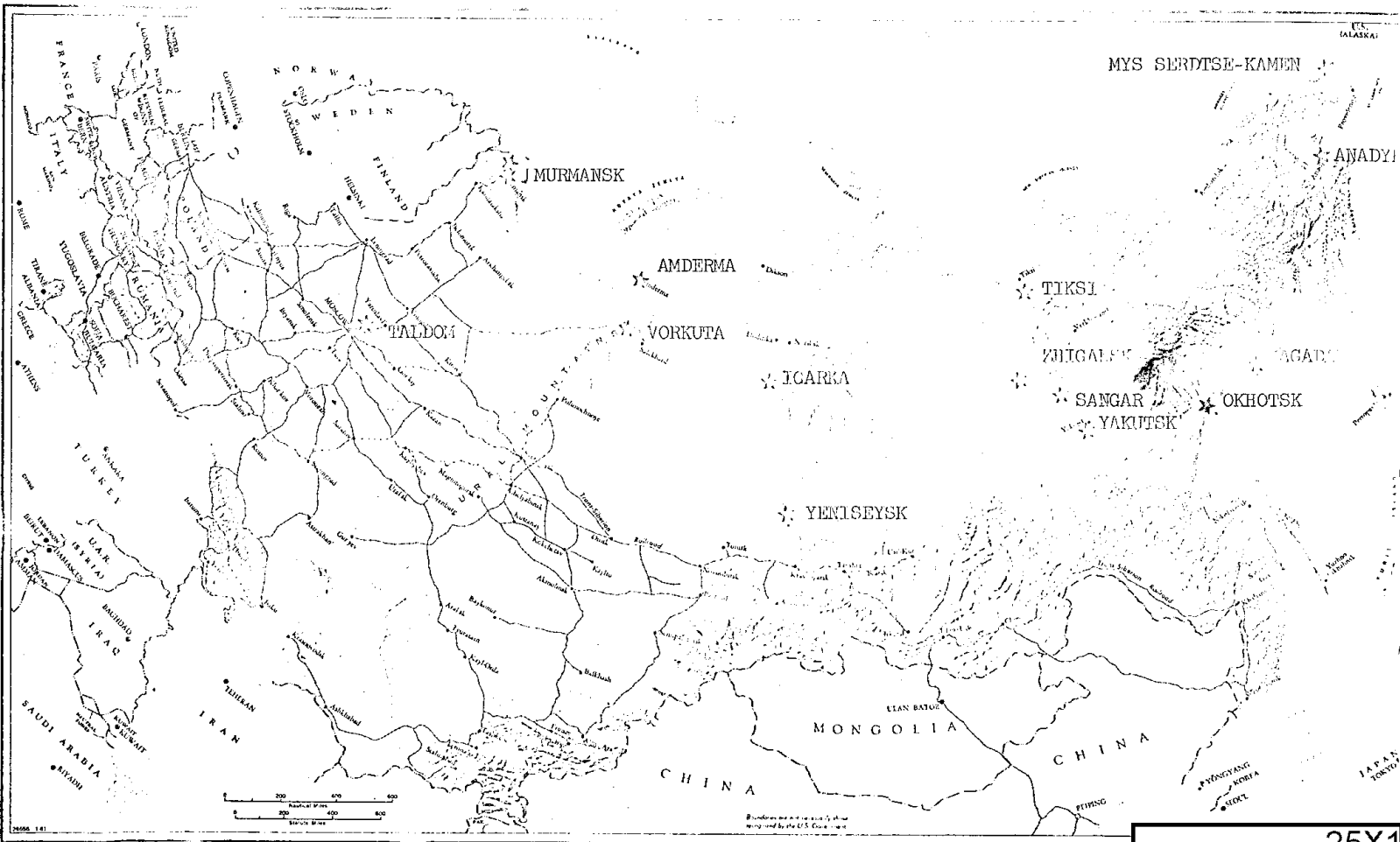
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TROPOSCATTER FACILITIES IDENTIFIED ON KH PHOTOGRAPHY
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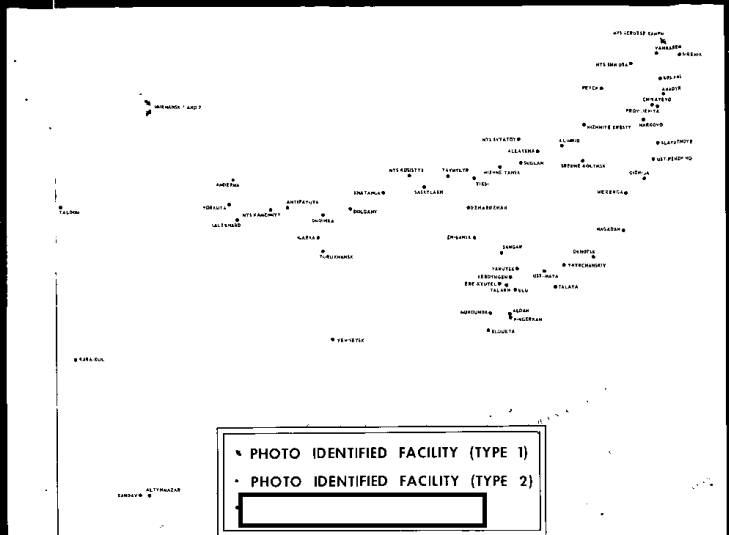
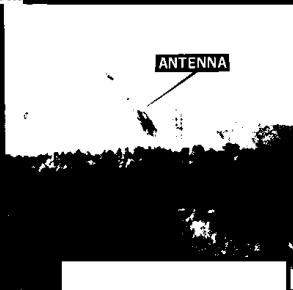
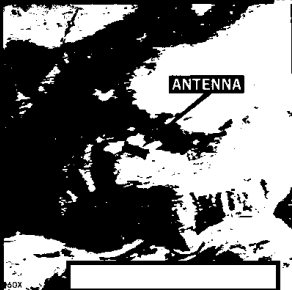
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TROPOSCATTER FACILITIES TYPES AND DEPLOYMENT, USSR

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TYPE 1 TROPOSCATTER FACILITY

MURMANSK
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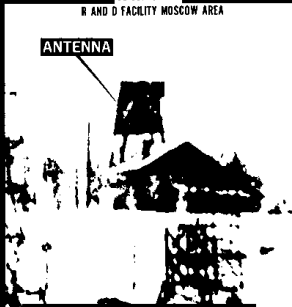


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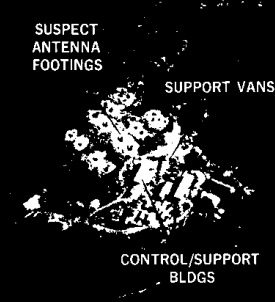
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TYPE 2 TROPOSCATTER FACILITIES

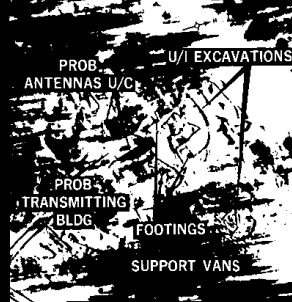
MYTISHCHI
55 55N 37 44E
R AND D FACILITY MOSCOW AREA



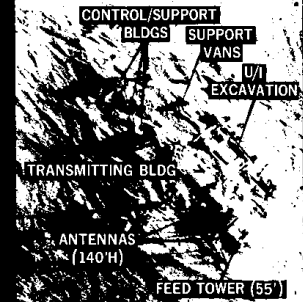
SANGAR (EARLY CONSTRUCTION)
63 54N 127 32E



YENISEYSK (MID-CONSTRUCTION)
68 27N 91 50E



AMDERMA (LATE CONSTRUCTION)
69 42N 61 25E



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