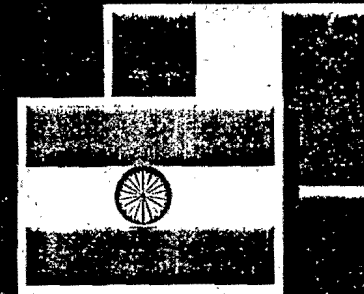


FOUO

ELECTRO-OPTICAL SYSTEMS - 1995 10 TO 5.8 METER DATA



- **SPOT**

- BEST COMMERCIAL RESOLUTION
 - 10 M PANCHROMATIC (PAN)
 - 20 M MULTISPECTRAL (MSI)
- GLOBAL DISTRIBUTION NETWORK

- **IRS-1C**

- INDIAN REMOTE SENSING SATELLITE
- 5.8 M PAN DATA

MEDICK.01L

FOUO

FC 0

ELECTRO - OPTICAL SYSTEMS 1996 - 1998

- ACCELERATED PACE
- MILITARY QUALITY
- 1 - 3 M DATA

SMALLSAT TECHNOLOGY

- **COMMERCIALLY VIABLE**
 - LIGHT STRUCTURAL MATERIALS
 - ELECTRONIC MINIATURIZATION
- **TURNKEY SYSTEMS**
- **CONFIGURATION OPTIONS**

ELECTRO-OPTICAL SYSTEMS

1996-1998

1 - 3 METER DATA

- **COMMERCIAL HIGH RESOLUTION SENSORS**

- IMPROVED RESOLUTIONS

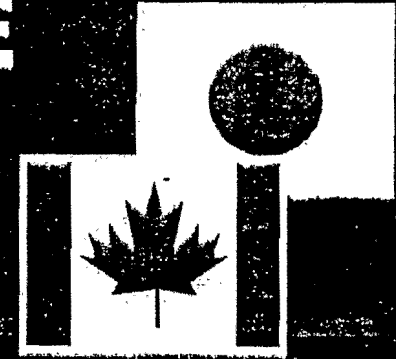
- SPECTRAL CAPABILITY

- NO CHANGE IN SPECTRAL COVERAGE

- NO CHANGE IN NUMBER OF BANDS

FOI O

SYNTHETIC APERTURE RADAR SYSTEMS 1995 30 TO 10 M DATA



- **EUROPEAN EARTH RESOURCES SATELLITE (ERS)**
 - EUROPEAN SPACE AGENCY (ESA)
 - 30 M RES
- **JAPANESE EARTH RESOURCES SATELLITE (JERS)**
 - 18 M RES
- **RADARSAT**
 - CANADIAN (WITH US COOP)
 - 10 M RES

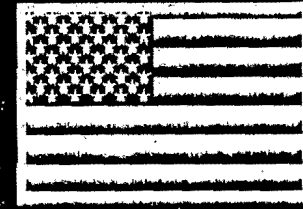
SYNTHETIC APERTURE RADAR SYSTEMS 2000

3-5 M DATA



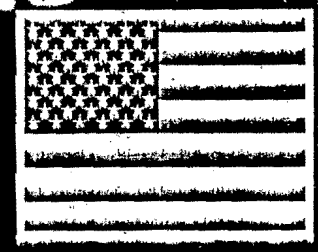
- **SPOT CIVIL SAR**
 - 4 - 5 M RESOLUTION
- **POSSIBLE SAR PROLIFERATION**
 - DESIGN IMPROVEMENTS
 - LIGHTSAR CONCEPT
 - MULTIBAND/MULTIPOLARIZED SAR

IMAGING SPECTROMETERS



- **REVOLUTIONARY APPROACH**
- **HYPERSPECTRAL IMAGERY**
- 100S OF BANDS
- **COMPONENT ANALYSIS OF OBJECT**
- **SPECIAL SIGNATURE (FINGERPRINT)**

IMAGING SPECTROMETERS HYPER SPECTRAL TECHNOLOGY



- **HSI**
 - NASA LEWIS 1996
 - 384 SPECTRAL BANDS
 - .4 - 2.5 MICRONS
- **HYDICE**
 - NRL AIRBORNE SENSOR
 - .4 - 2.5 MICRONS
 - 206 SPECTRAL BANDS

ROW SPACE-BASED REMOTE SENSING

- **TRENDS**
 - DUAL USE
 - SYNERGY OF SYSTEMS
 - MULTINATIONAL

ROW COMMERCIAL SPACE-BASED REMOTE SENSING

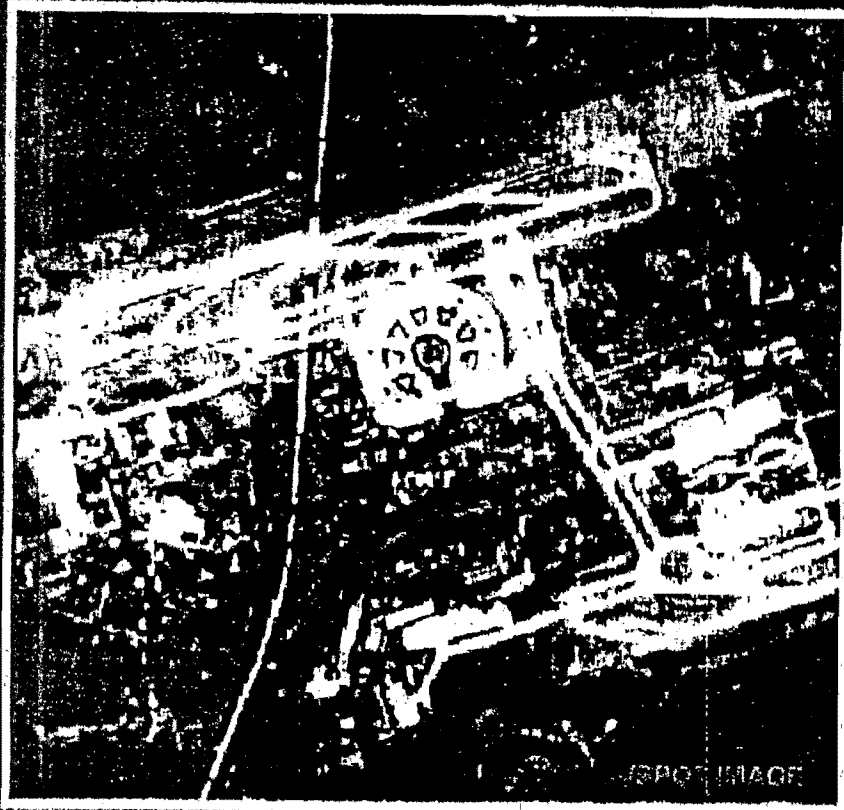
- **IMPACT ON US FORCES**
 - LOSS OF SPACE-EDGE
 - C2W SEVERELY CHALLENGED
- **REMOTE SENSING TECHNOLOGY**
 - EXPECT ACCELERATION

FCUO

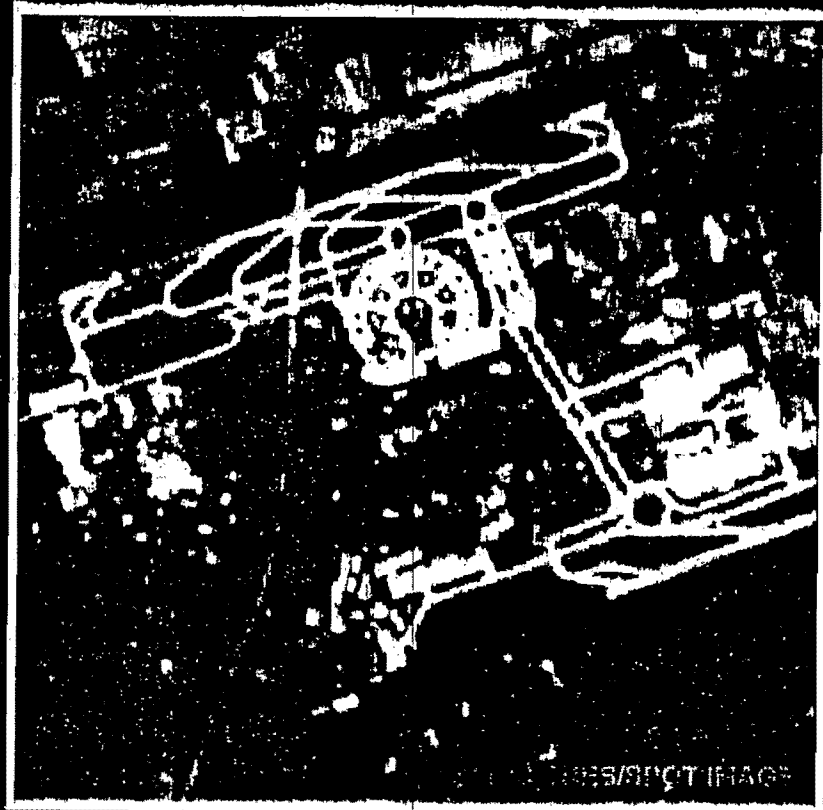
ELECTRO-OPTICAL CAPABILITY 1995



SPOT DATA CHARLES DE GAULLE AIRPORT, PARIS



10 M PAN

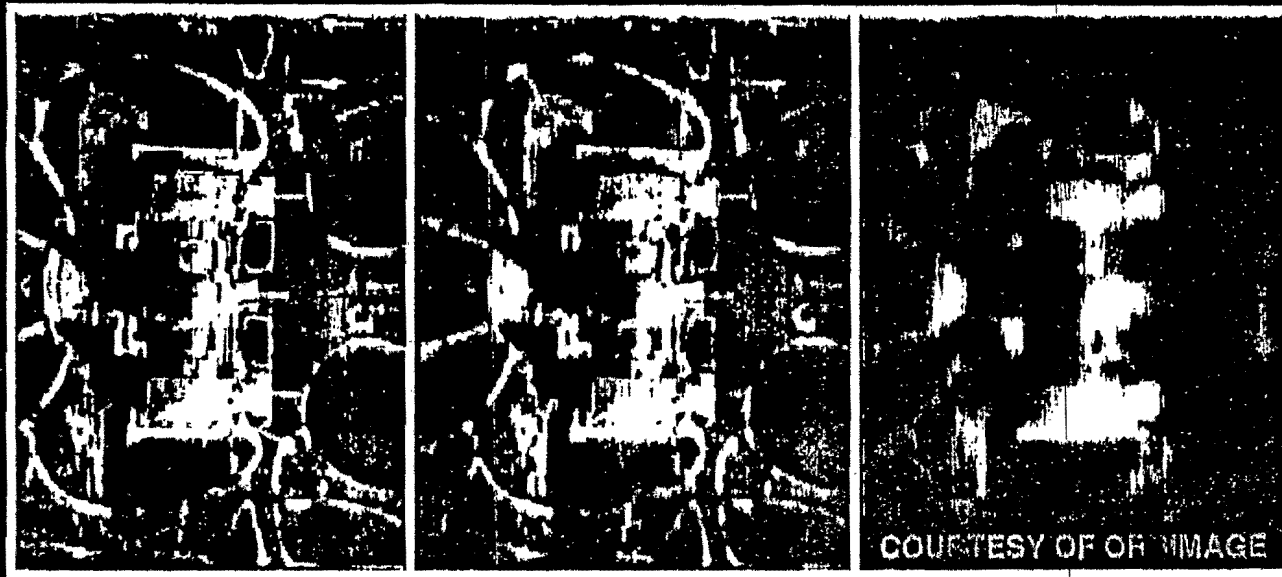


20 M MSI

MEDICK.02R

FCUO

ELECTRO-OPTICAL SYSTEMS 1996 - 1998



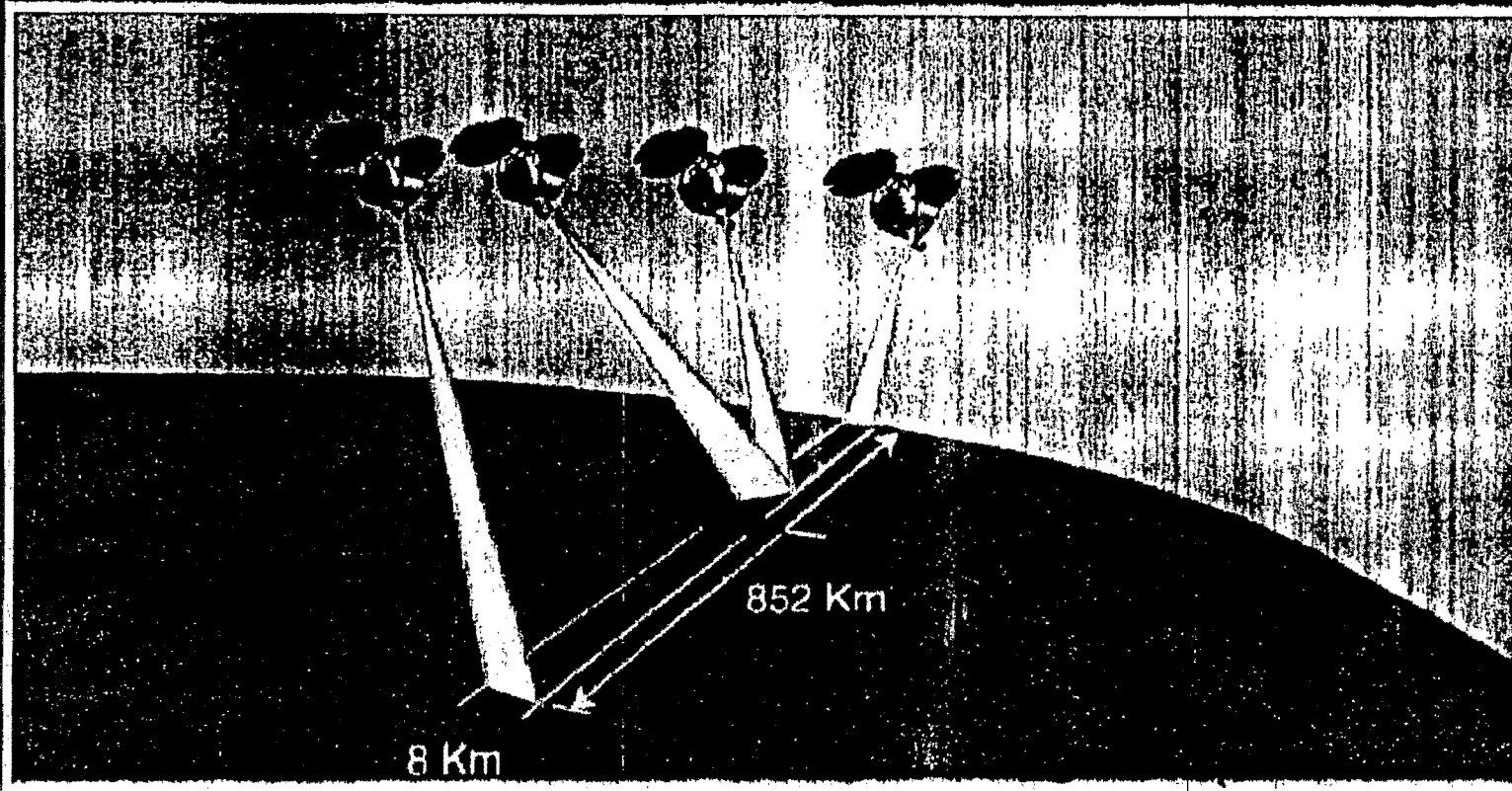
1 M RES

3 M RES

10 M RES

FOUO

ELECTRO-OPTICAL SYSTEMS SMALLSAT TECHNOLOGY



ORBVUE DEPICTION

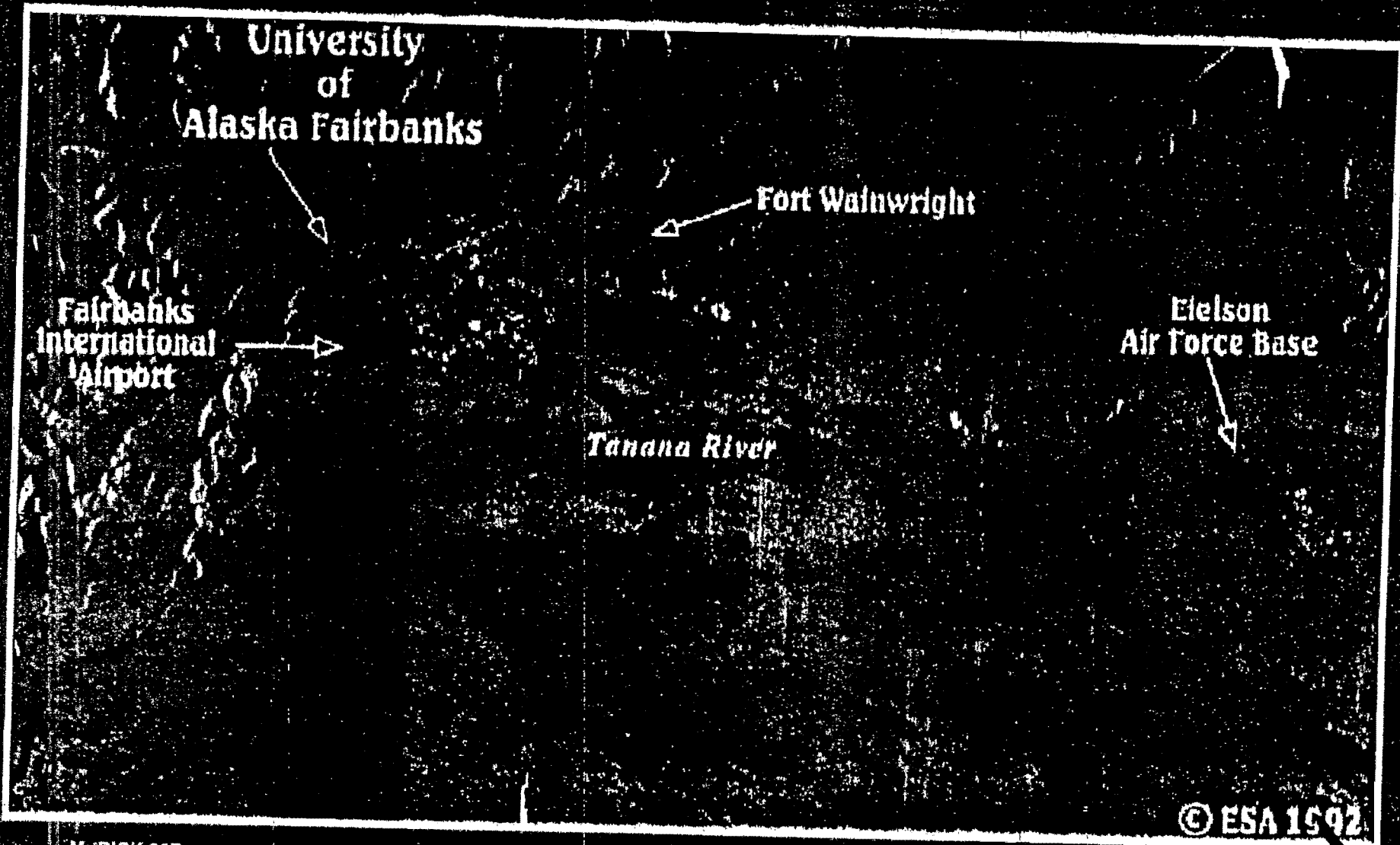
MEDICK.04P

FOUO

REMOVE

FCUO

SAR SYSTEMS 1995 ERS-1



© ESA 1992

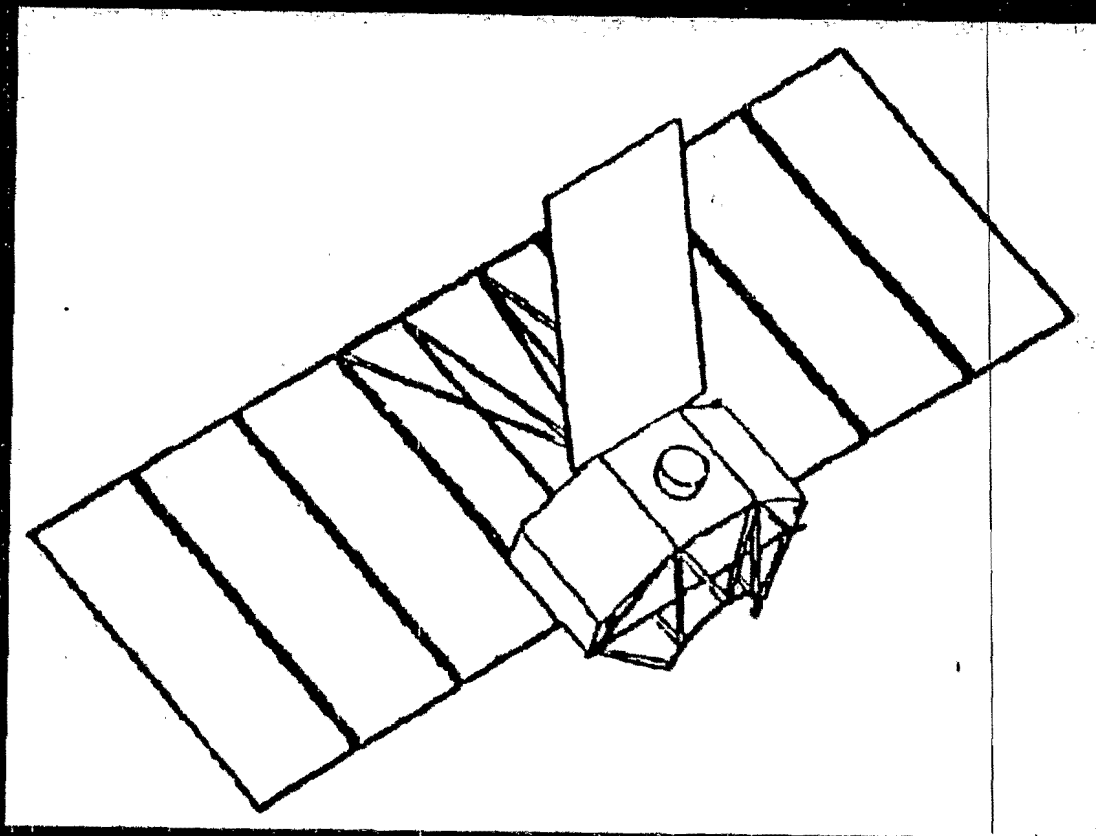
MEDICK.06R

F010

529000

FC UO

SAR SYSTEMS 2000

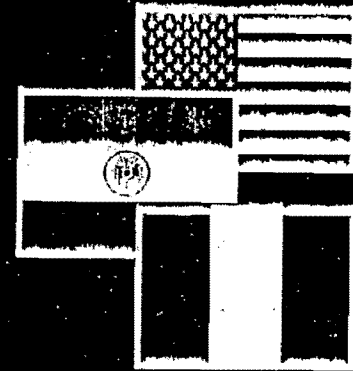


FUTURE SAR DESIGN
384 KG TOTAL
100 KG RADAR

MEDICK.09R

FC'10

HYPERSPECTRAL VS CURRENT SPACE MULTISPECTRAL SENSORS



SYSTEM

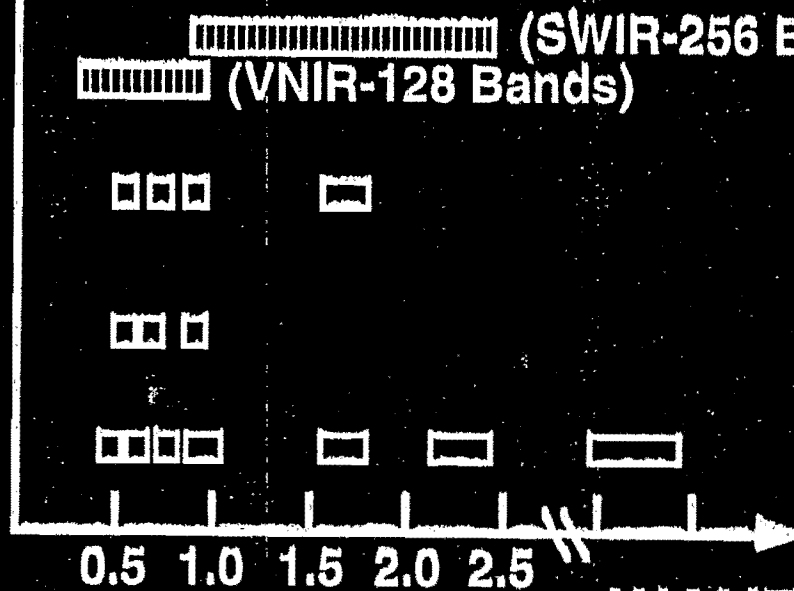
LEWIS
(384 Bands)

IRS-1C
(4 Bands)

SPOT-1,2,3
(3 Bands)

Landsat 4
(7 Bands)

(SWIR-256 Bands)
(VNIR-128 Bands)



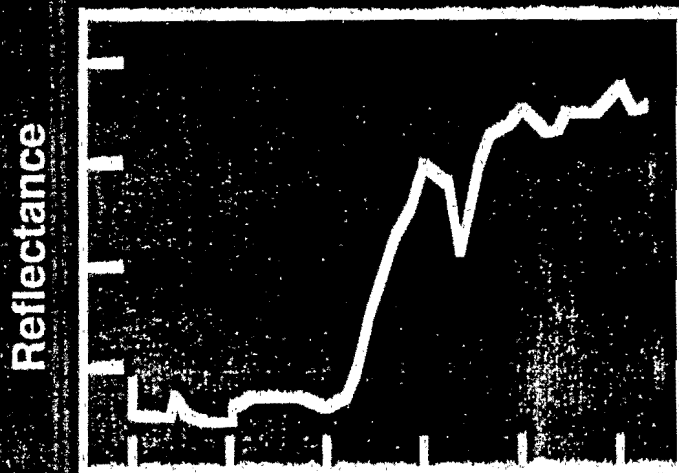
WAVELENGTH (μm)

HYPERSPECTRAL AND MULTISPECTRAL SCENE CHARACTERIZATION

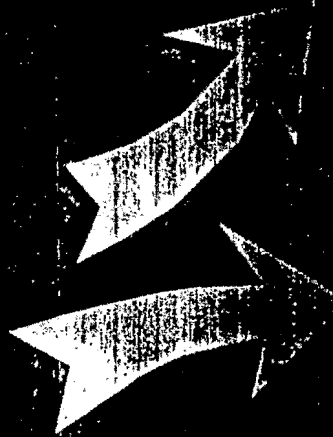


HYPERSPECTRAL IMAGING HUNDREDS OF BANDS

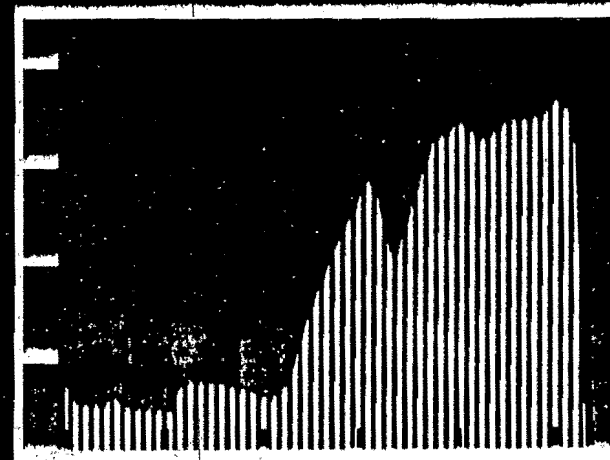
Spectral
Characteristic
Of Scene



Wavelength

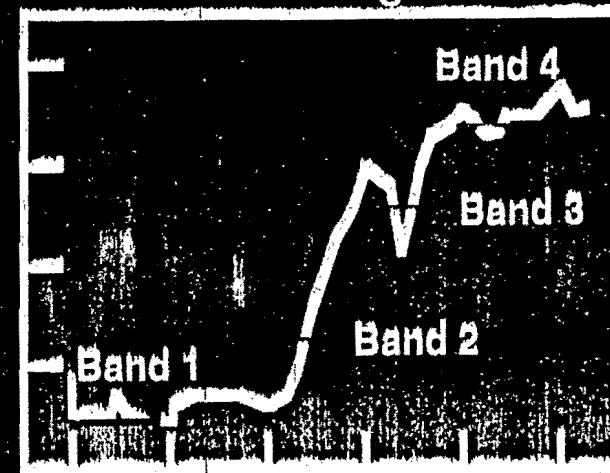


Measured
Reflectance



Wavelength

Measured
Reflectance



Wavelength

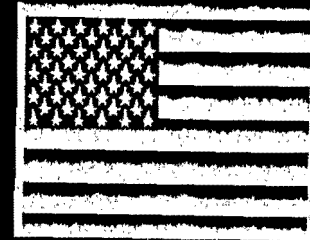
MULTISPECTRAL IMAGING FEW BANDS

MEDICK.11R

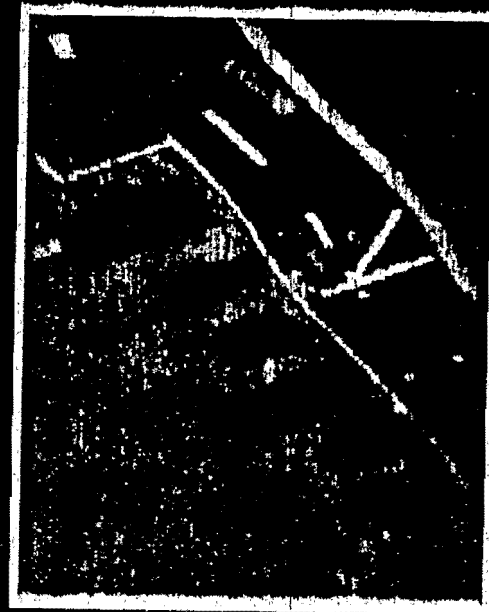
220102



IMAGING SPECTROMETERS HYPERSPPECTRAL TECHNOLOGY



DISCRIMINATION OF DIFFERENT TENTING MATERIALS & VEHICLES



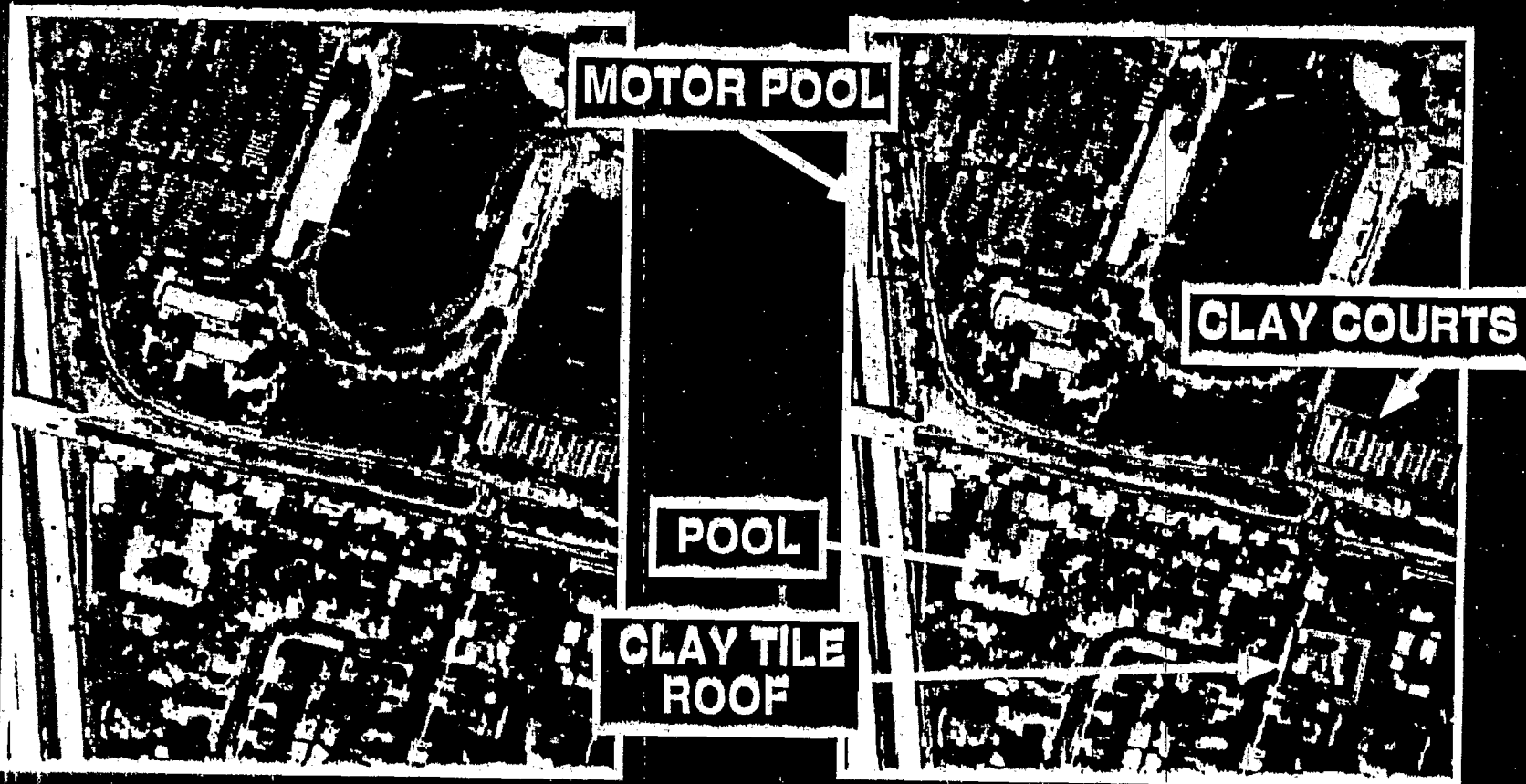
HSI SENSOR
NASA LEWIS SATELLITE

MEDICK.12R

FOUO

ROW SPACE-BASED REMOTE SENSING FUTURE SYNERGY

SPACE IMAGING - CUPERTINO, CA



SIMULATED 0.82 M PAN

PRODUCT 0.82 M MSI
(0.82 M PAN + 3.2 M MSI)