

# W G C V - 20 U K N a t i o n a l R e p o r t

Gordon K eyte, Space Department, QinetiQ

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Tasmania

The QinetiQ logo is located in the bottom right corner of the slide. It consists of a blue curved shape, resembling a stylized horizon or a wave, with the word "QinetiQ" written in white sans-serif font across it.

QinetiQ

# U K space programme

- U K space activities managed through British National Space Centre (BNSC)
- BNSC partners represent U K interests in space, ie, science, industrial, environment, meteorological, defence.
- Overall programme covers EO , communications, space science, navigation.
- EO Funding about £90M pa of which roughly half is invested through ESA (eg, ENVISAT , Earth Explorer, Earthwatch)
- National EO programme aimed at:
  - *user liaison*
  - *exploitation*
  - *technology development*
  - *mission preparation*

# National programme activities

- Market Entry Programme
  - develop links in EO market chain
- Service Mission Support
  - develop industrial expertise for operational missions
- NEWTON
  - develop technologies in support of science missions
- GIFTSS
  - application of EO to government requirements
- Customer Partnership Programme
  - develop operational uses of satellite data
- EOFTR
- GMES

# Earth Observation Future Technology Requirements (EOFTR)

- Consultation with environment sciences community
- NERC Centres of Excellence - CPOM, NCA S, ESSC, etc
- Identification of key EO requirements and future instruments (eg, LIDAR, low frequency SAR)
- Emphasis on climate change research
- Emphasis on atmospheric measurements, eg, boundary layer wind speeds, atmospheric chemistry, ice distribution in clouds
- Also emphasis on land, sea measurements in support of climate change research, eg, vegetation biomass, ice fluxes
- Use of data assimilation - geophysical data from widely separated EO sources input to models; importance of EO data validation

## Global Monitoring for Environment and Security (GMES)

- Aim: to match existing and future policy needs with operational satellite services
- Membership: JRC, EC, ESA, EUMETSAT and National Agencies (eg, BNSC)
- International links: EU, WEU, UN, EEA, IPCC and also to CEOS (via IGOS)
- Three themes: International Treaty Implementation, Environmental Stress, Risk Management
- Current status: Definition of user requirements
- Example products: Surface UV Radiation Maps, Oil Spill Services, Water Management, Flood Risk and Flood Damage Assessment
- GMES data intended to manage environment and security policies; important that EO derived data is validated

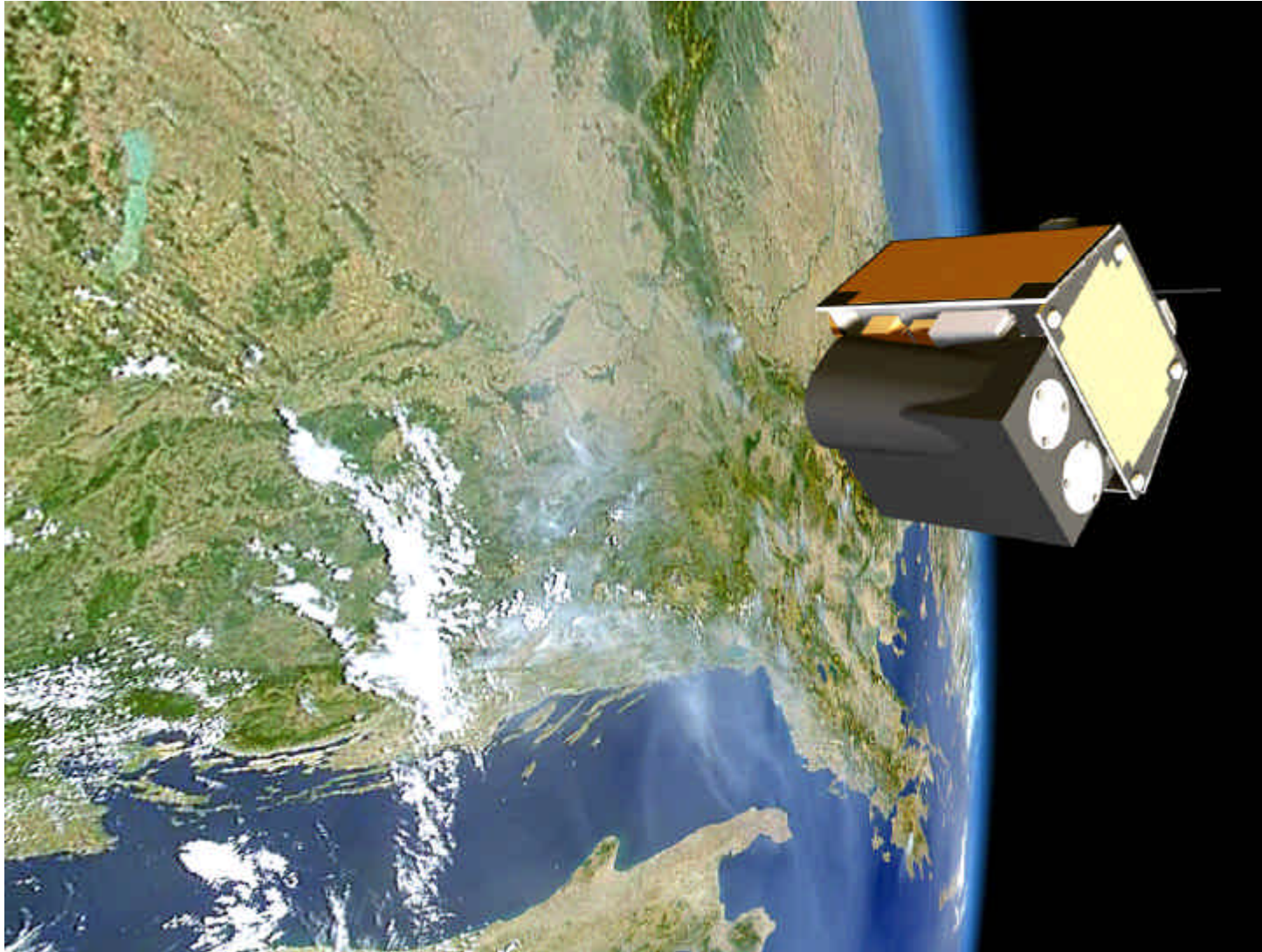
## CEOS activities

- Membership of CEOS plenary
- Membership of WGCV and WGISS
- Membership of working groups:
  - *Terrain Mapping, SAR, IVOS, LPV*
- Supports WGISS Test Facility
- *Increasing emphasis on data exploitation - for environment and science*
- *Increasing emphasis on validation of geophysical products*
- *Possible need to strengthen role of WGCV in product validation*

## Recent UK EO space activities

- Disaster Monitoring Constellation (DMC)
  - first satellite of DMC launched - AISAT-1, for Algeria
  - built by Surrey Satellite Technology (SSTL)
  - payload: Multispectral Imager, 32m resolution, 600km swath
  - uses Internet Protocol (IP) for routine operations
- Meteosat Second Generation (MSG-1)
  - launched by ESA for EUMETSAT
  - payload:
    - SEVIRI - Spinning Enhanced Visible & IR Imager, 12 channels, 1km sampling, 15 min update
    - GERB - Geostationary Earth Radiation Budget, precise measurement of radiation flux at top of atmosphere (led by Imperial College)

# TopSat



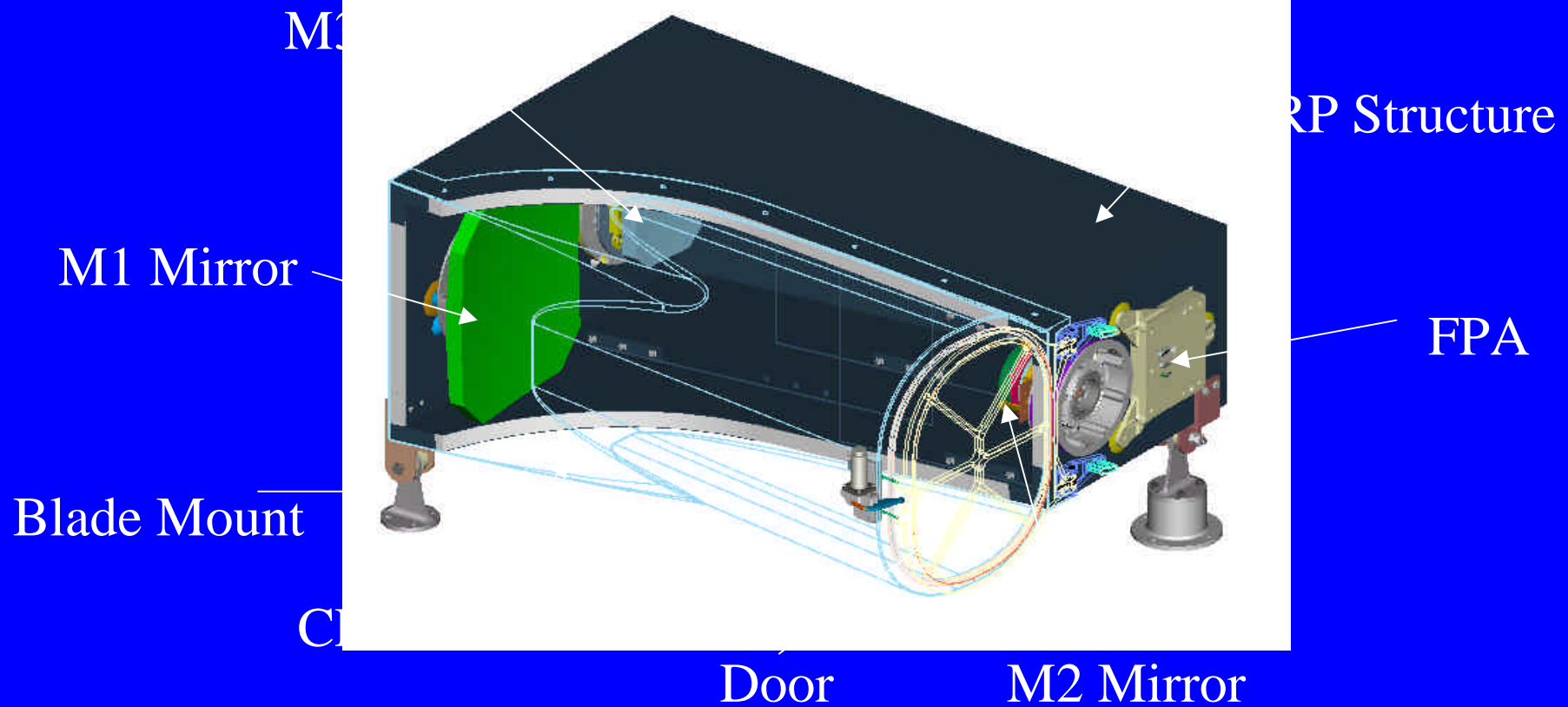
**QinetiQ**



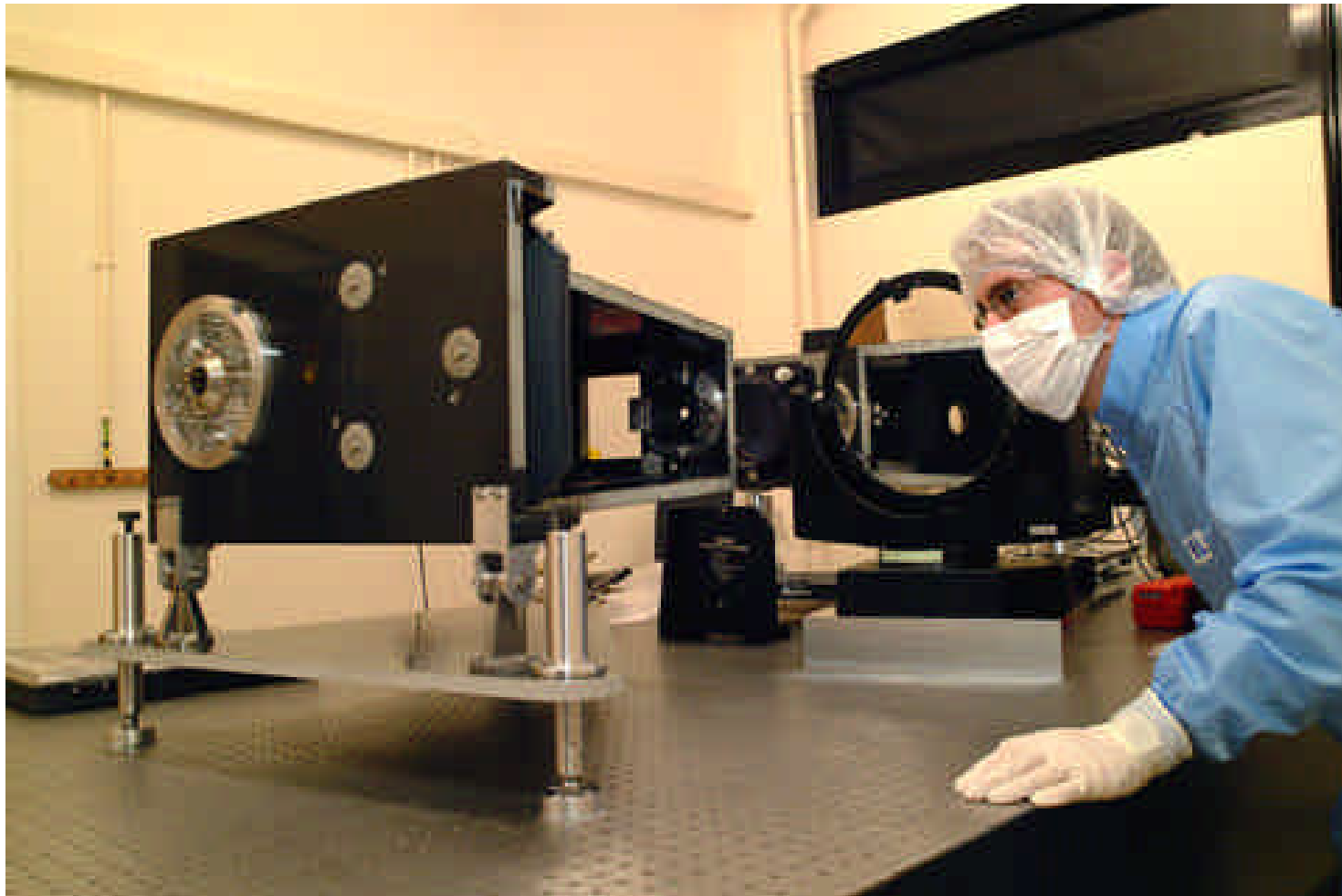
# TOPSAT - low cost, high quality imagery

- Aims - to demonstrate use of low cost satellites to provide information direct to user
- Performance - 2.5m pan, 15km FOV , +/- 30deg off track, 3 to 5 images per day
- Partners: RAL (camera), SSTL (satellite bus), QinetiQ (Project lead, data handling, ground segment, operations)
- Status: design complete, all engineering models complete, launch scheduled for early 2004.

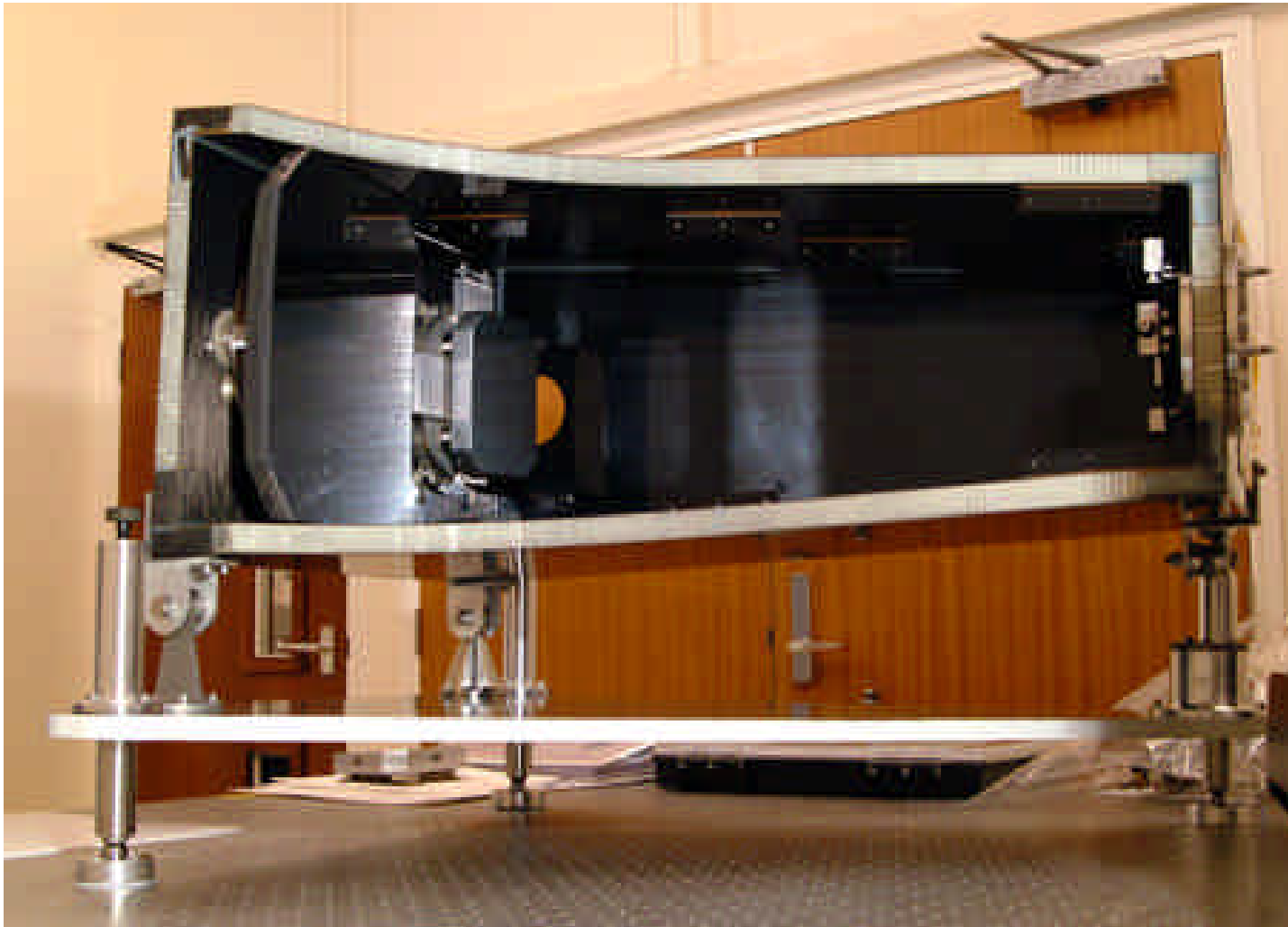
# Camera Mechanical Overview



# EM Telescope



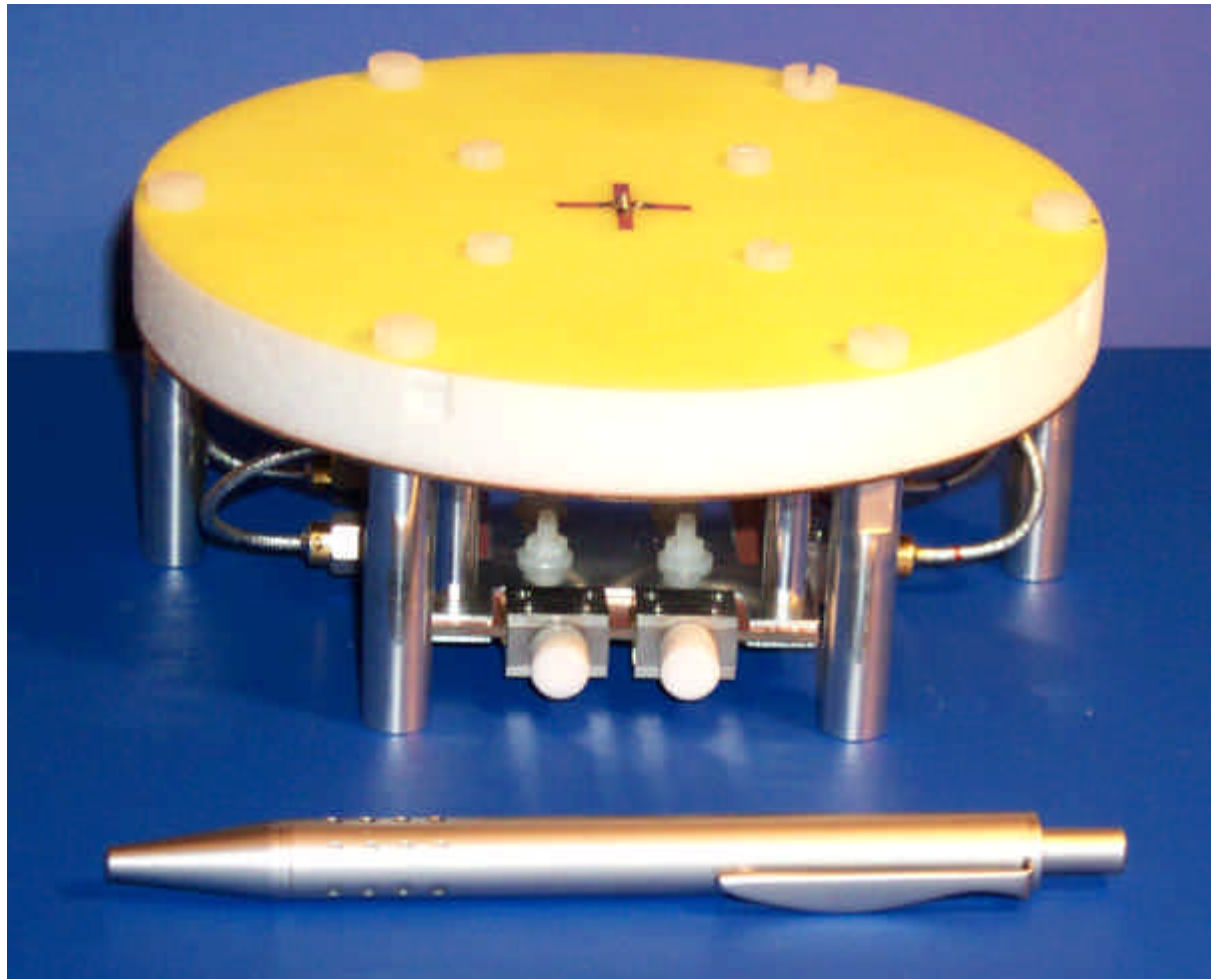
# EM Telescope



# Structural Qualification Model Spacecraft



## X B and A ntenna





# Mobile Satellite Ground Station: RAPIDS



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