SESREMO

Strengthening education in space-based remote sensing for monitoring of eco systems in Israel, Azerbaijan, Kazakhstan

GEONETCast
Delivering Environmental Data to Users Worldwide

GEONETCast Overview

SESREMO staff training for GETNETCast labs | 13.08.2015

Technische Universität Berlin

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What is GEONETCast?

GEONETCast is a global network of satellite-based data dissemination systems providing environmental data to a world-wide user community

- ✓ Delivering a vast range of essential environmental data to users around the globe
- ✓ User-friendly and low-cost dissemination service of satellite data and products
- ✓ Creating a basis for decision-making in a number of critical areas, including:

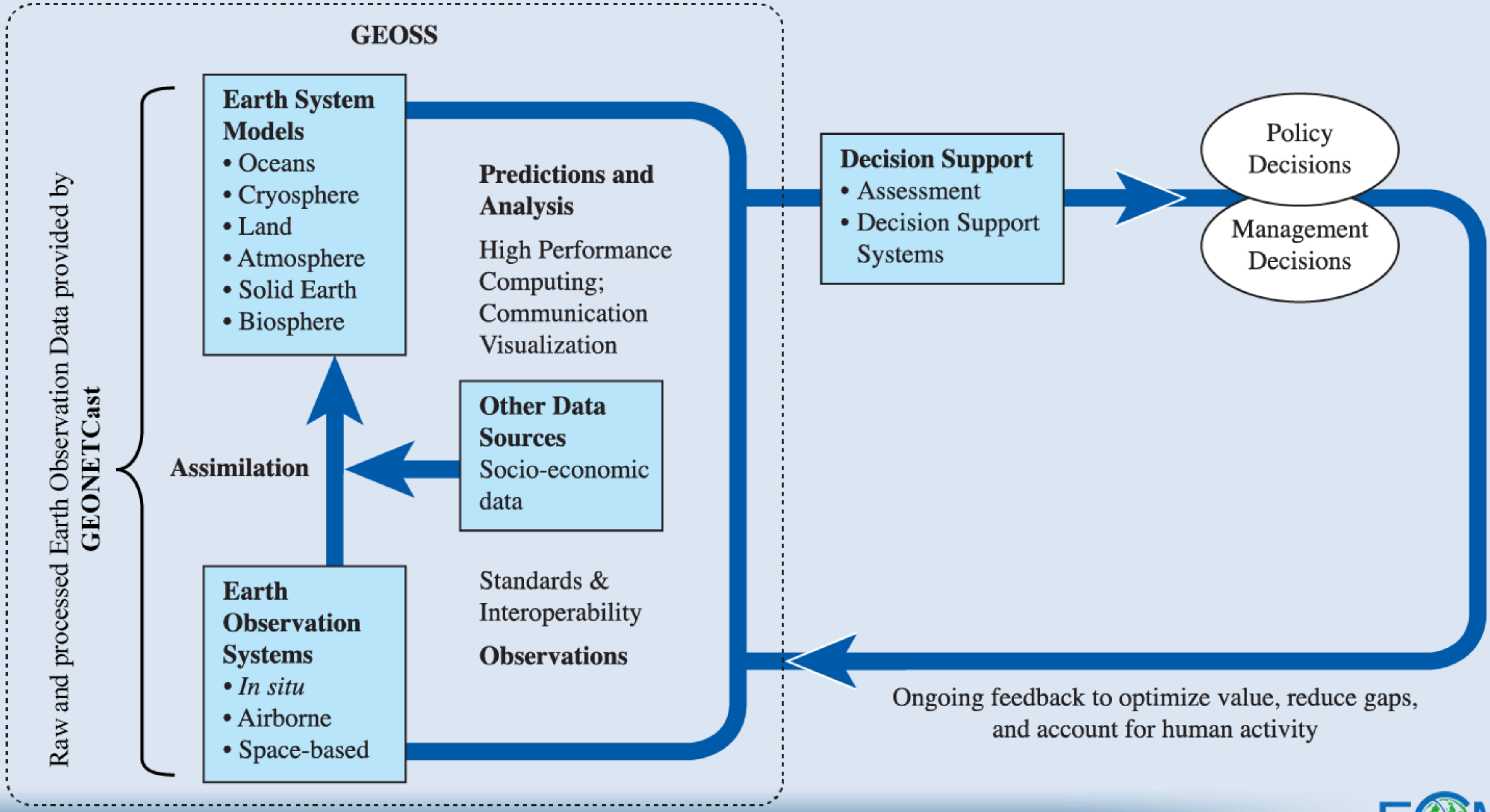
  - Public health
  - Energy
  - Agriculture
  - Weather
  - Water
  - Climate
  - Natural disasters
  - Ecosystems

Societal benefits through improved human health and well-being; environment management, and economic growth

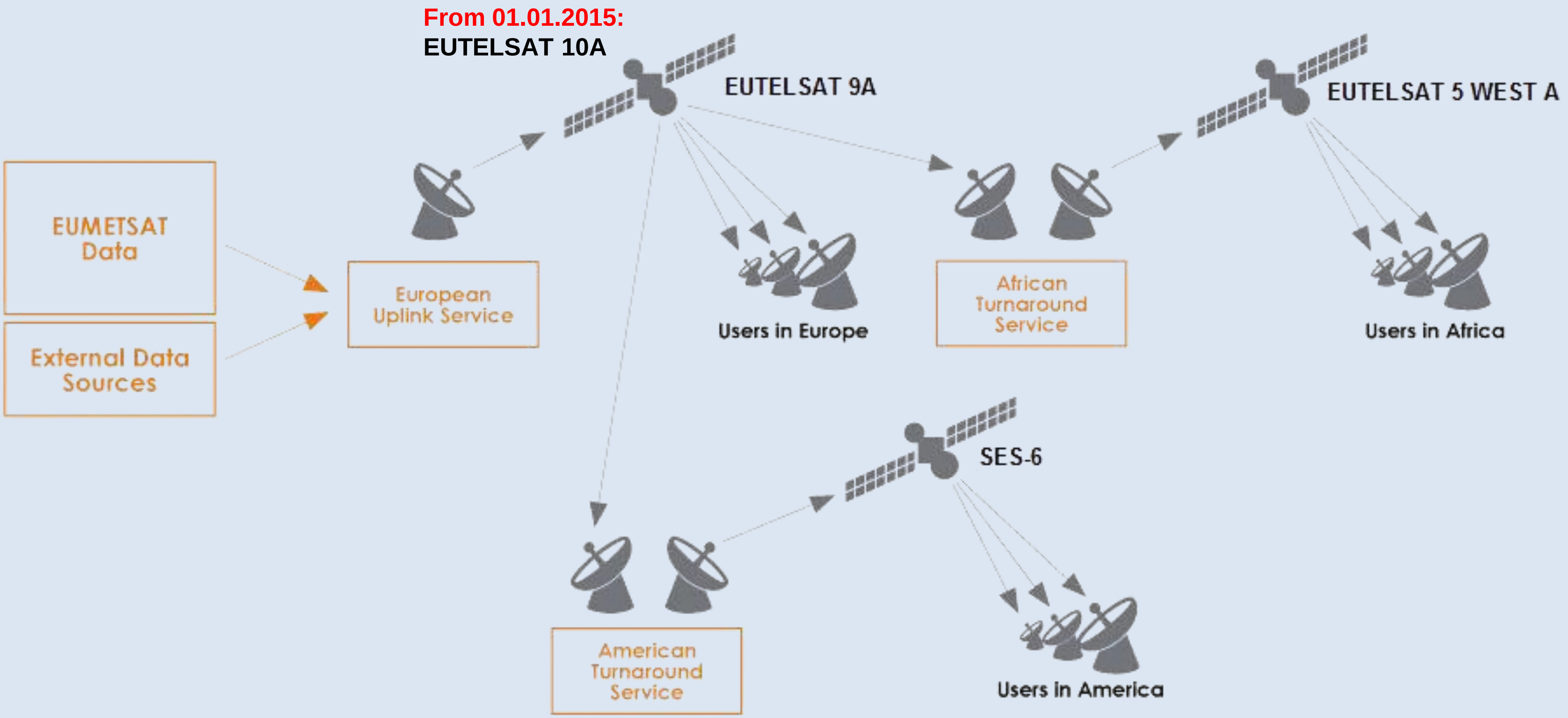
What is GEONETCast?

GEONETCast is a milestone in the Global Earth Observation System of Systems (GEOSS), coordinated by the intergovernmental Group on Earth Observation (GEO)

What is GEONETCast?



Dissemination System



Dissemination Data

Key GEONETCast Satellite Data Providers

- **EUMETSAT** — Meteosat (every 15 minutes) and Metop (per local satellite pass) satellite data
- **NOAA** — GOES and POES satellite data and NOAA-NESDIS products (atmospheric and marine)
- **CMA** — FY-1/2 satellite data
- **JMA** — MT-SAT satellite data

Satellites

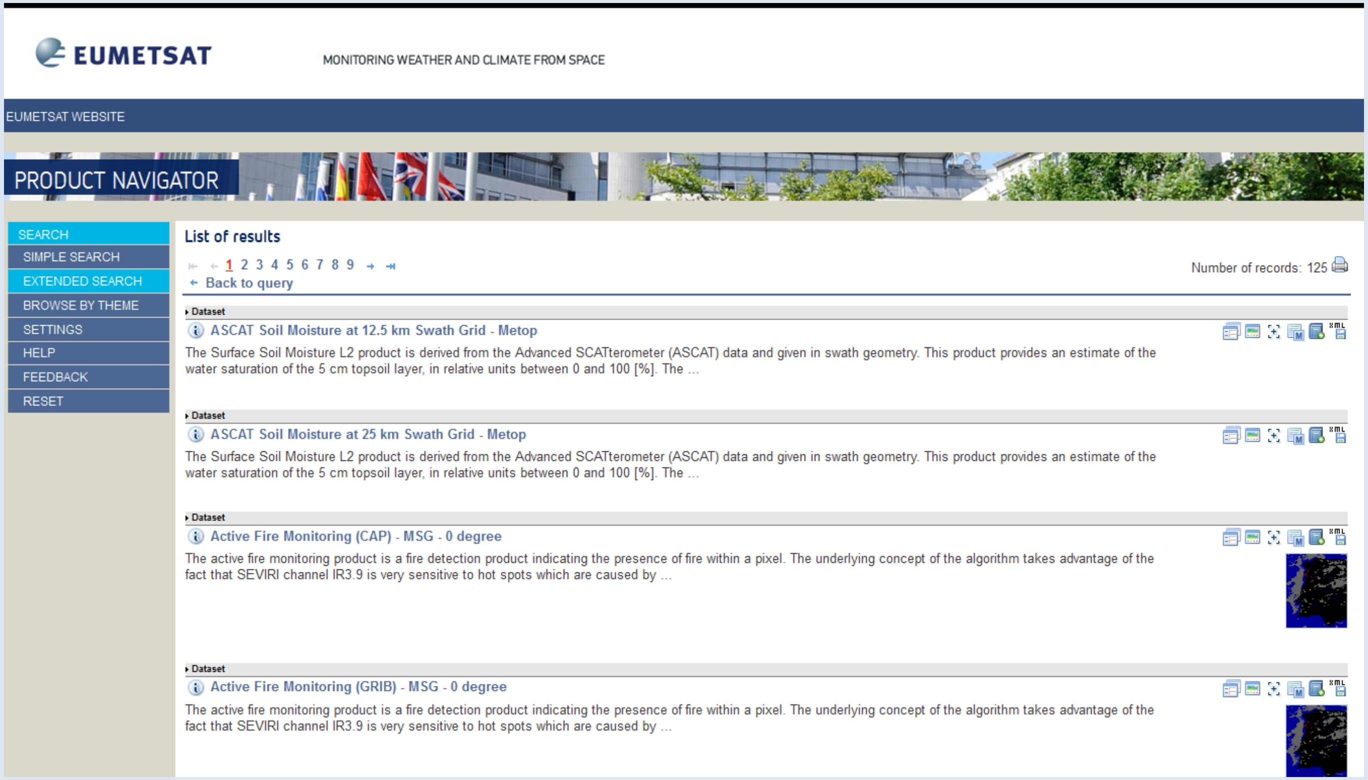
- **Aqua**
- **CBERS**
- **DMSP**
- **ERS**
- **Electro-L**
- **FengYun 2**
- **FengYun 3**
- **GCOM**
- **GOES**
- **Jason**
- **Landsat**
- **MFG**
- **MSG**
- **MTSAT-2**
- **Megha-Tropiques**
- **Metop**
- **NOAA**
- **Oceansat**
- **PROBA-V**
- **QuikSCAT**
- **SAC-C**
- **SARAL**
- **SMOS**
- **SPOT**
- **Suomi-NPP**
- **Terra**

Categories

- **Aerosol**
- **Analysis**
- **Atmosphere**
- **Calibration**
- **Cloud**
- **Fire**
- **Forecasts**
- **Humidity**
- **Information**
- **Land**
- **Land Surface Temperature**
- **Level 1 Data**
- **Lightning**
- **Model**
- **Observation**
- **Ocean**
- **Ocean Colour**
- **Ocean Surface Wind**
- **Precipitation**
- **Pressure**
- **Radar Backscatter NRCS**
- **Radiation**
- **Sea Ice**
- **Sea Surface Height**
- **Sea Surface Temperature**
- **Snow and Ice**
- **Soil Moisture**
- **Temperature**
- **Trace Gases**
- **Vegetation**
- **Wave**
- **Wind**

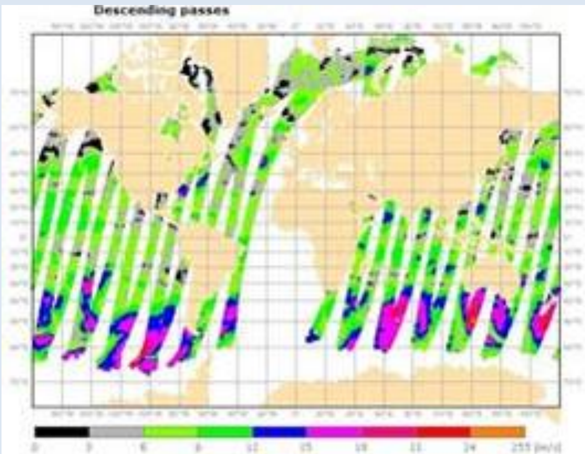
Dissemination Data

GEONETCast data and products can be listed (incl. detailed information) and filtered at the online EUMETSAT Product Navigator: navigator.eumetsat.int

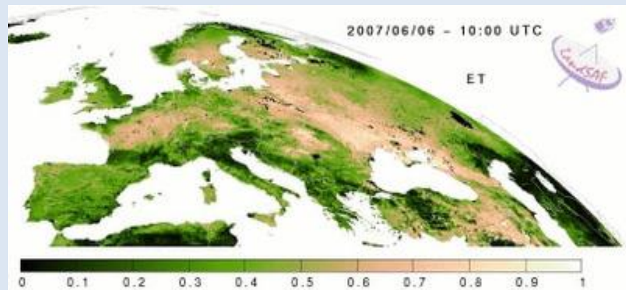


Dissemination Data

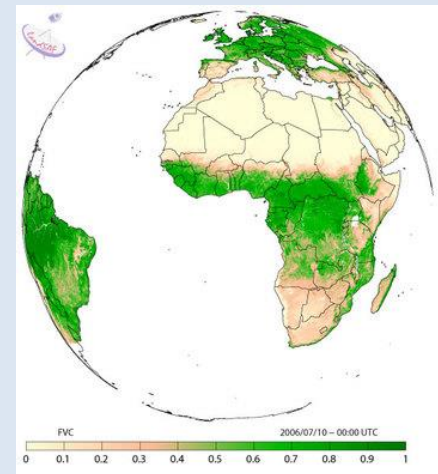
Product examples:



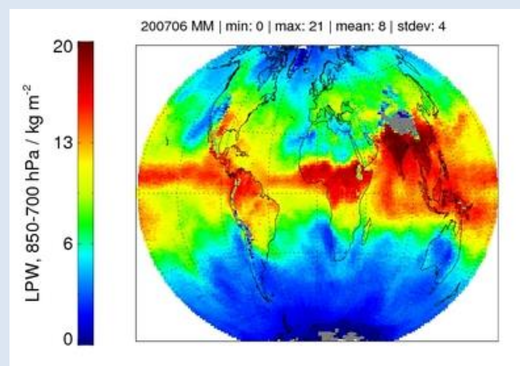
ASCAT Regional Ocean Surface Winds - Metop



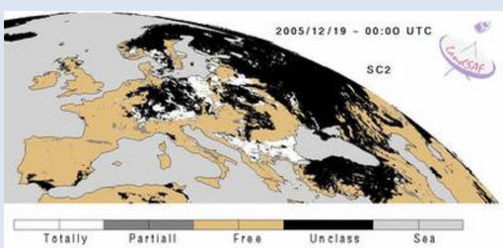
Evapotranspiration - MSG



Fractional Vegetation Cover - MSG



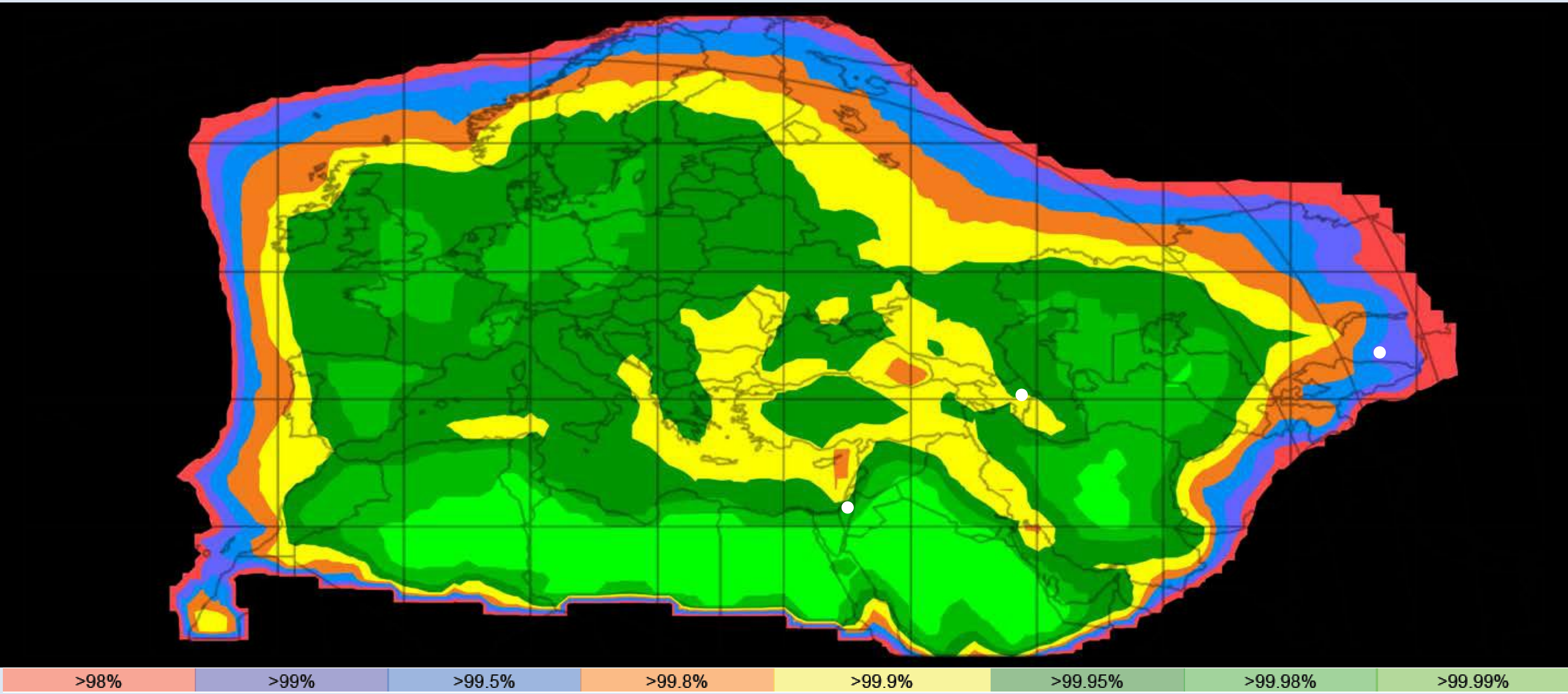
Layered Water Vapour and Temperature - NOAA



Snow Cover - MSG

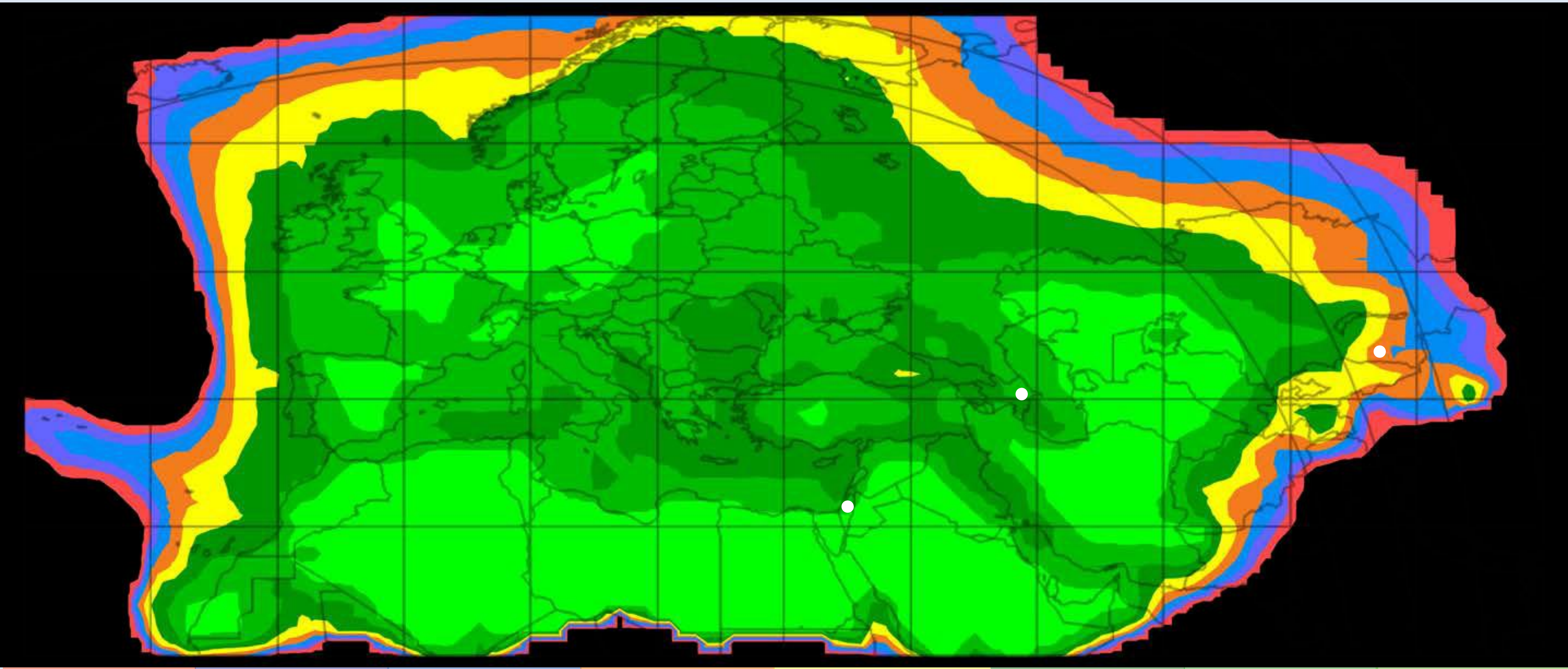
Eutelsat 10A – Basic Service availability

0.9m reception antenna



Eutelsat 10A – Basic Service availability

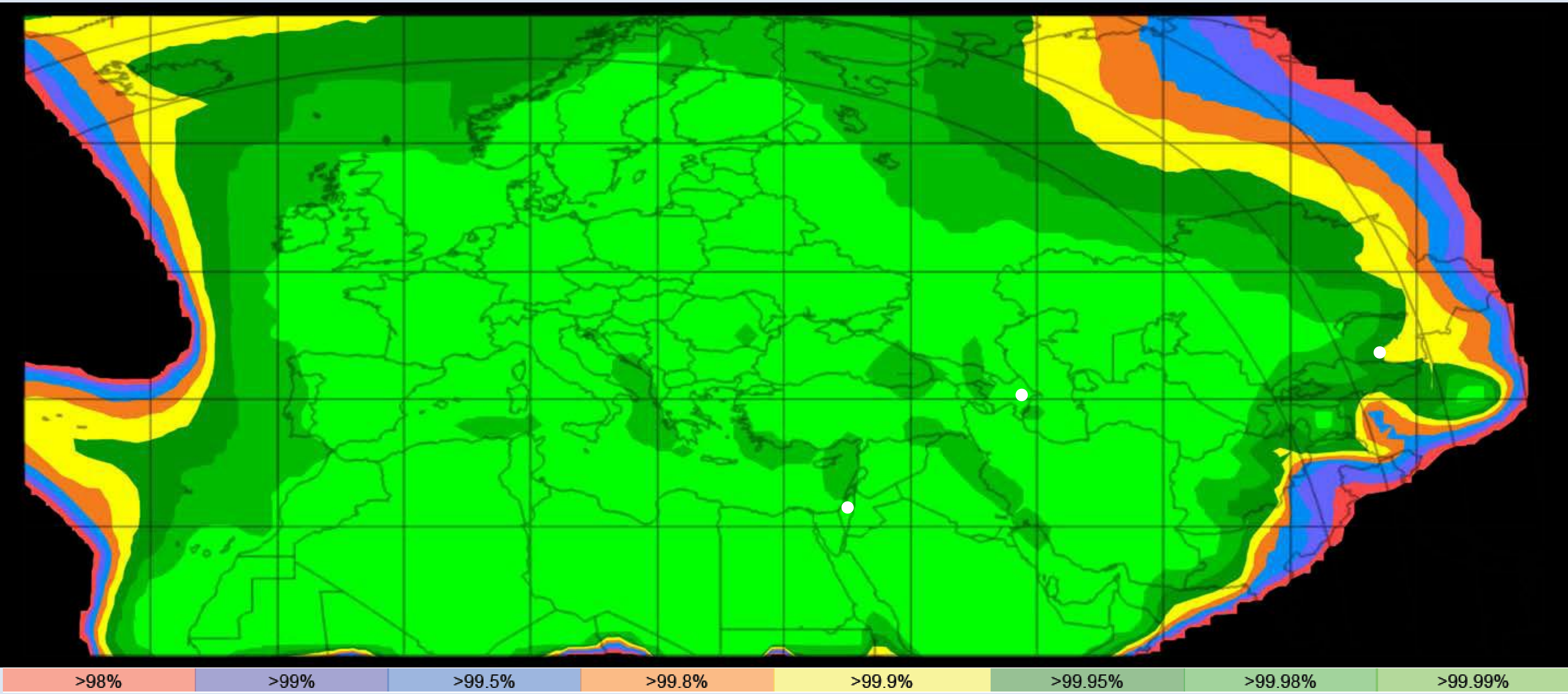
1.2m reception antenna



>98%	>99%	>99.5%	>99.8%	>99.9%	>99.95%	>99.98%	>99.99%

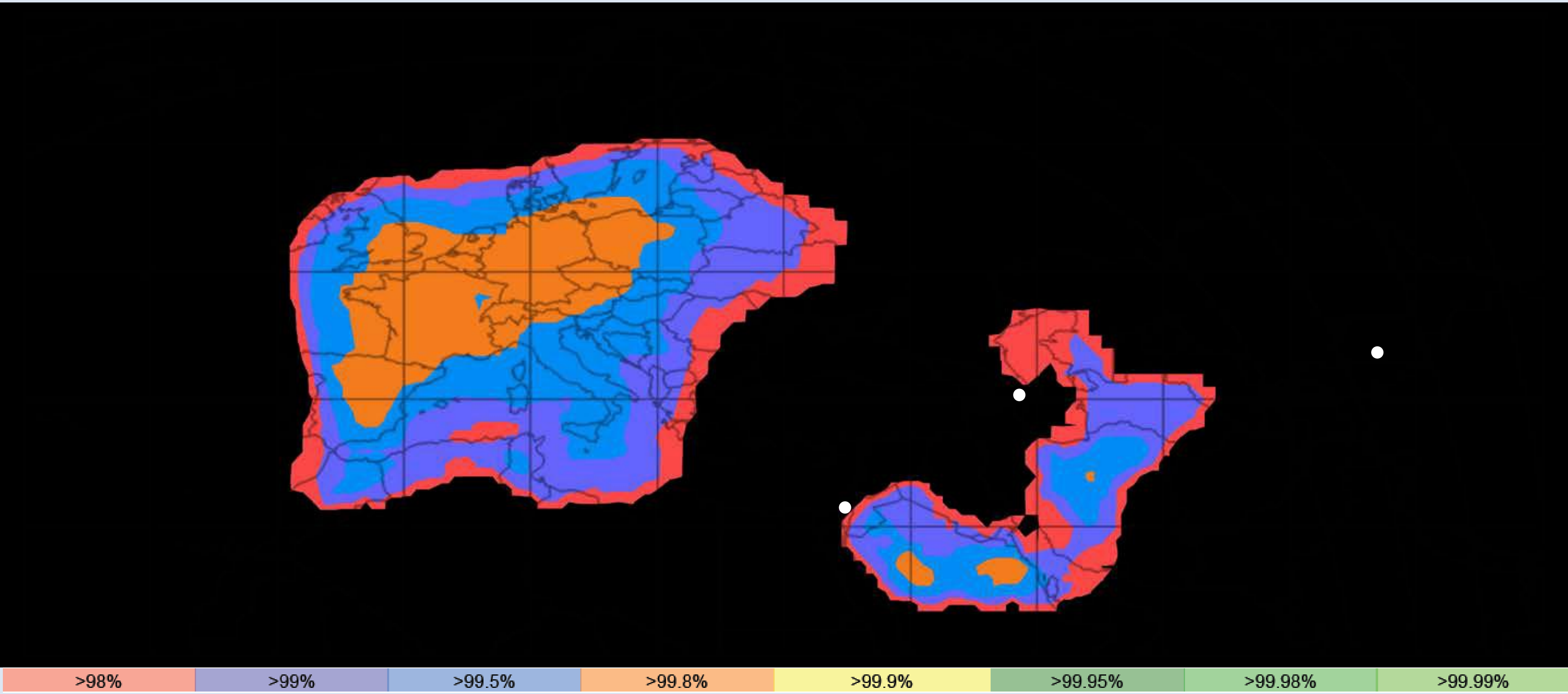
Eutelsat 10A – Basic Service availability

1.8m reception antenna



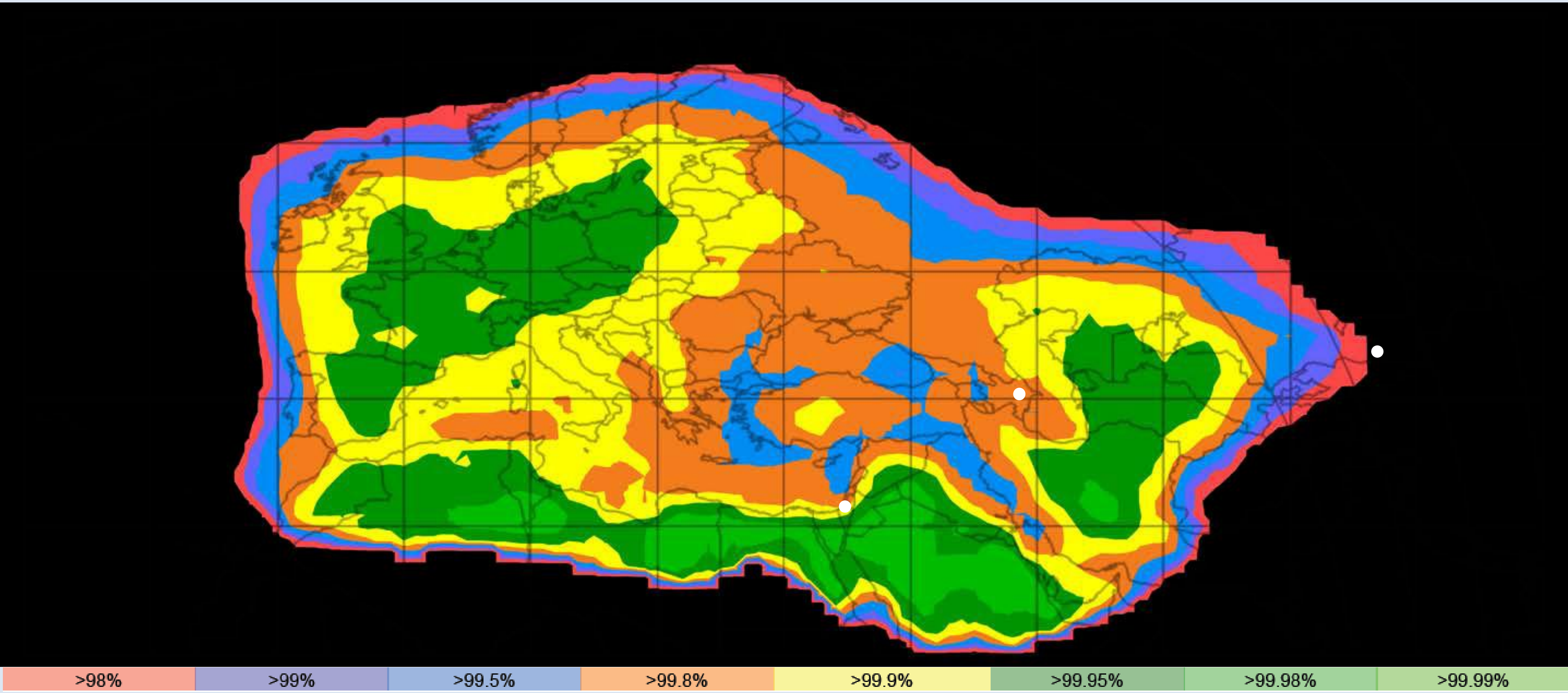
Eutelsat 10A - High Volume Service availability

0.9m reception antenna



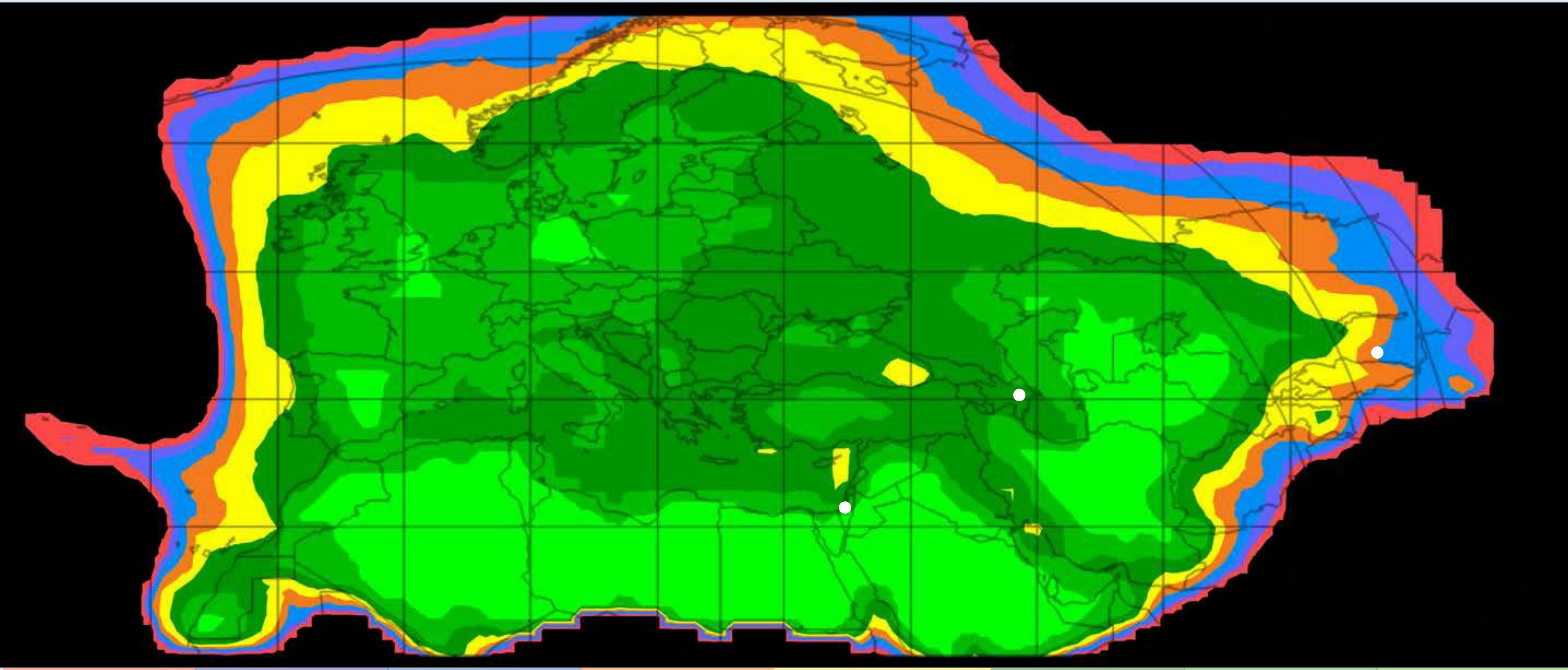
Eutelsat 10A - High Volume Service availability

1.2m reception antenna



Eutelsat 10A - High Volume Service availability

1.8m reception antenna



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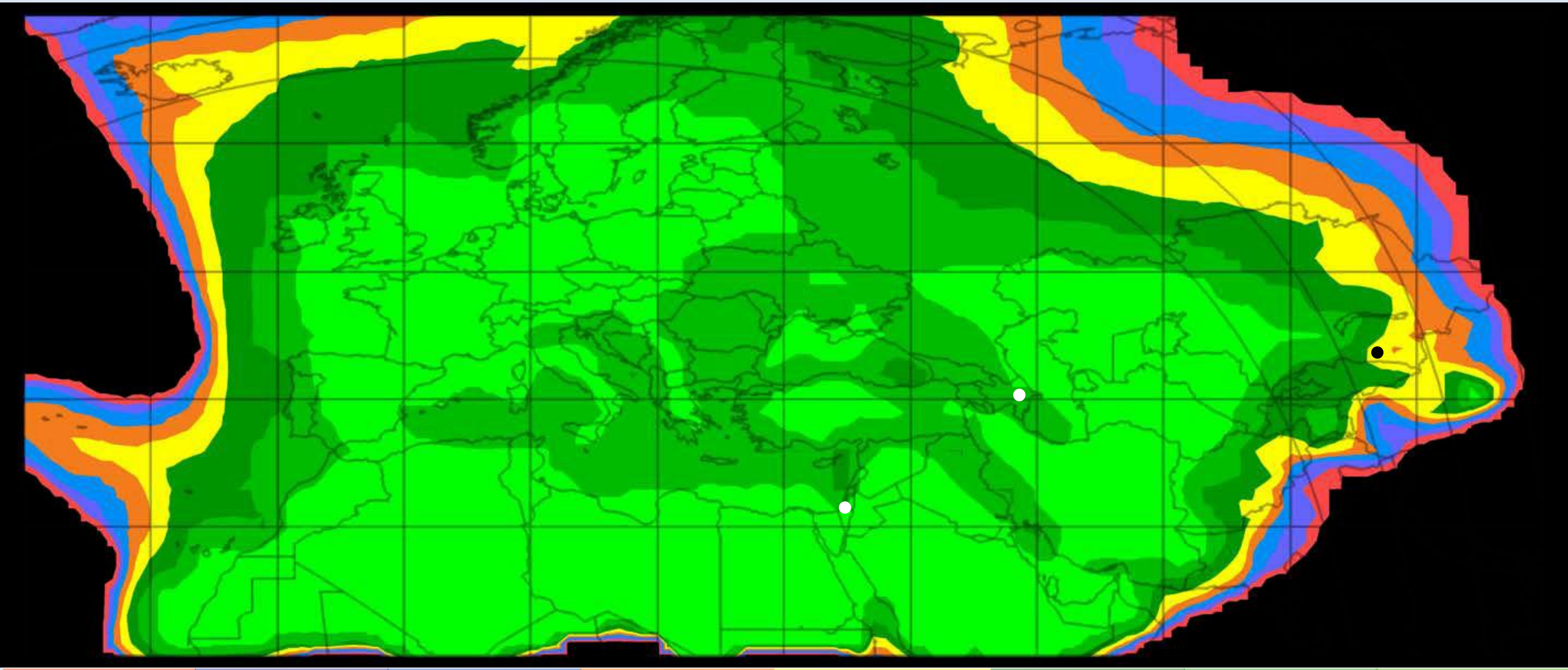
Eutelsat 10A - High Volume Service availability

2.4m reception antenna



>98%	>99%	>99.5%	>99.8%	>99.9%	>99.95%	>99.98%	>99.99%

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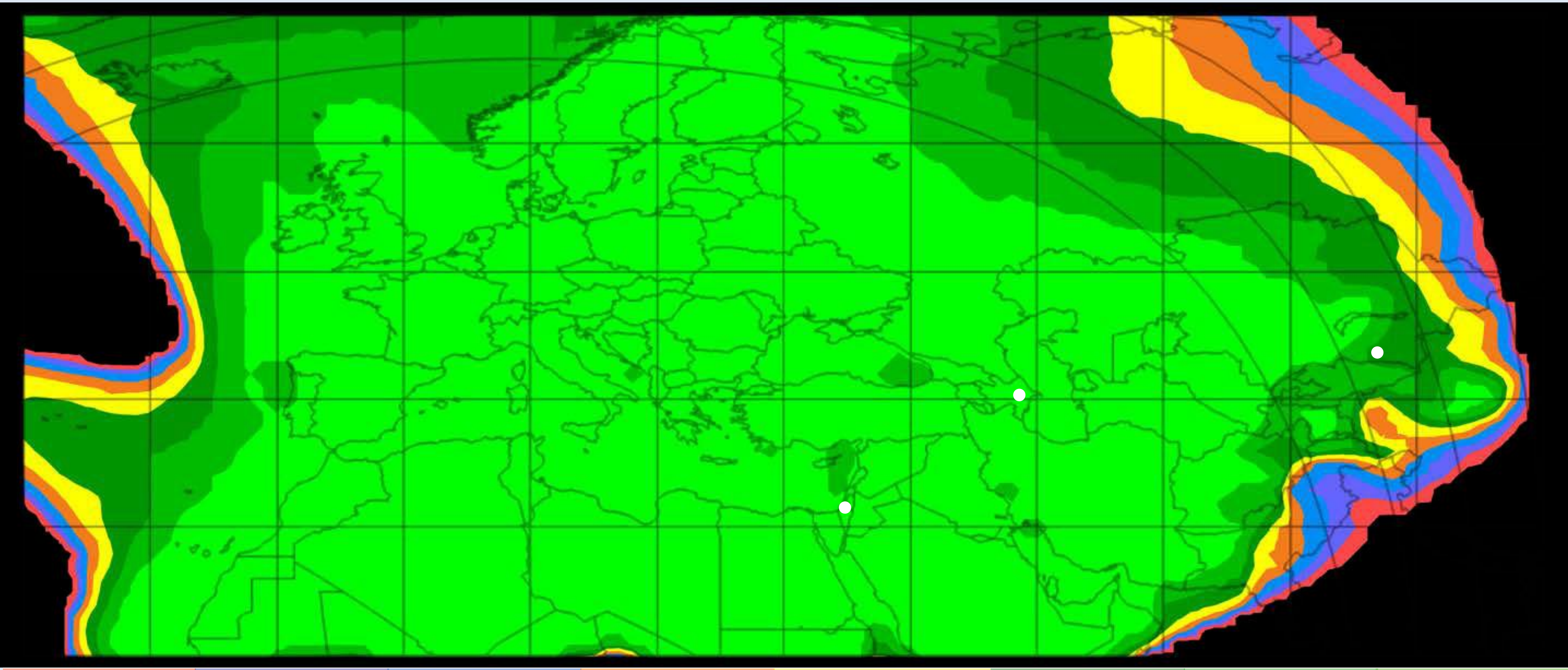
Eutelsat 10A - High Volume Service availability

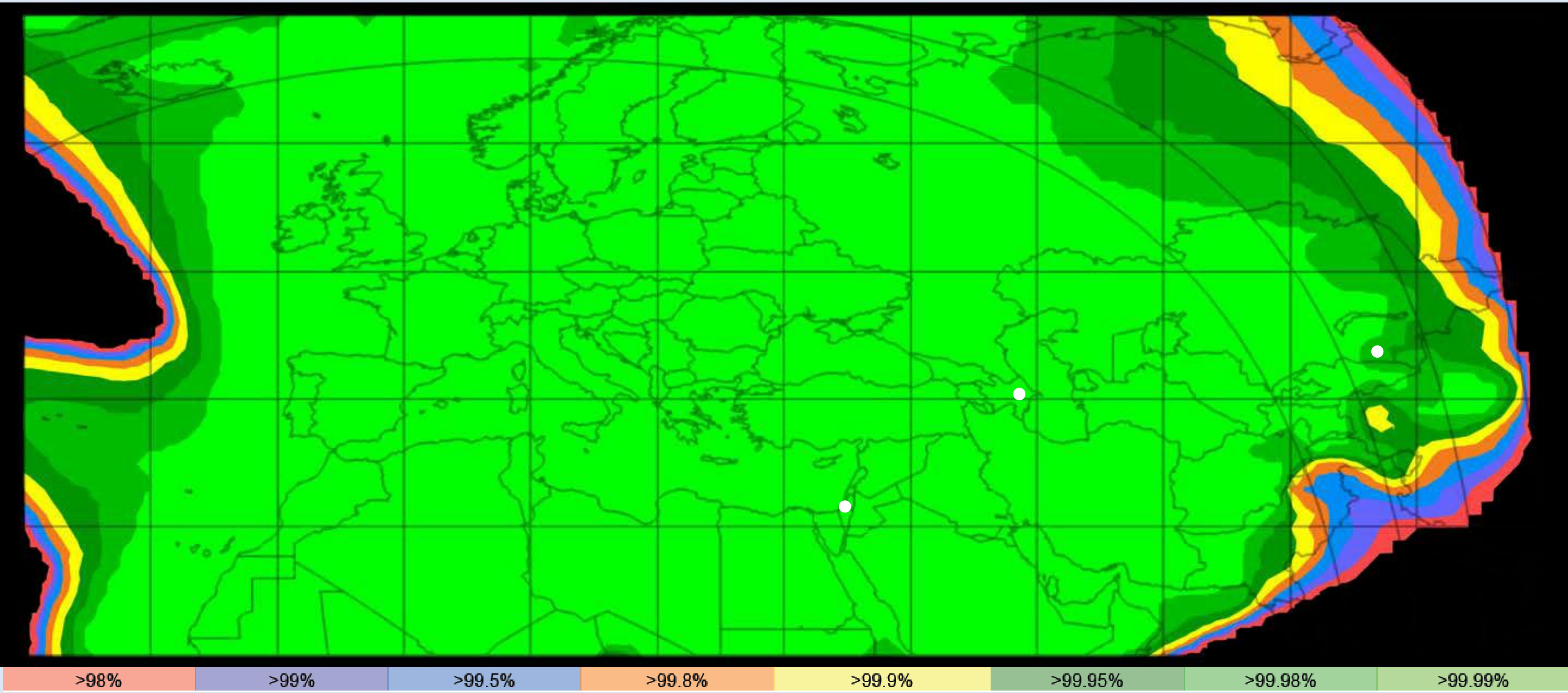
3.7m reception antenna



>98%	>99%	>99.5%	>99.8%	>99.9%	>99.95%	>99.98%	>99.99%

Eutelsat 10A - High Volume Service availability

4.5m reception antenna



Reception Station Requirements

Hardware Components

- **PC**, Hard Disk, Monitor
- **DVB-S2 Receiver** (i.e. Ayecka SR1 or TBS 5925)

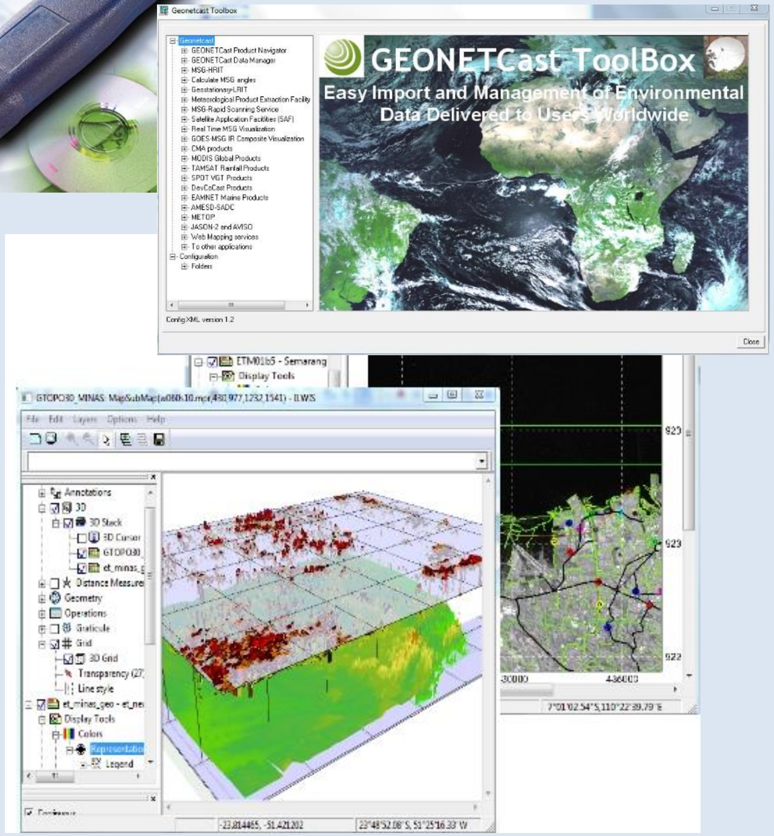
- **Cabling** / Connectors

- **Satellite Dish**, *for Basic Service*:
  - Almaty: 1.8m
  - Baku: 1.2m
  - Tel-Aviv: 1.2m
- **Universal V/H LNB** (HD Reception) in Ku-band (10.7 to 12.75 GHz), noise figure below 0.6dB

Reception Station Requirements

Software Components

- EUMETCast **Key Unit** (EKU)
- EUMETCast **Client Software**



- **GEONETCast toolbox** addon for **ILWIS Open,** incorporating other (free) software routines:
  - GEONETCast File Manager
  - Import routines
  - Other in-house developed software routines, Java applets, Batch files
- **ILWIS Open** - Remote Sensing and GIS software *integrates image, vector and thematic data in one unique and powerful desktop package. It delivers a wide range of features including import/export, digitizing, editing, analysis and display of data, as well as production of quality maps*

Information Resources & Links

TD 15 - EUMETCast - EUMETSAT's Broadcast System for Environmental Data - Technical Description

http://www.eumetsat.int/website/wcm/idc/groups/ops/documents/document/mday/mde1/~edisp/pdf_td15_eumetcast.pdf

- Hardware set-up of the ground station
- Setup of the Key Unit (KU) and client/receiving software "TelliCast"
- DVB-S2 receiver set up

Ayecka SR1 DVB Receiver EUMETCast Setup Guide • DVB-S2 receiver set up

http://www.eumetsat.int/website/wcm/idc/idcplg?IdcService=GET_FILE&dDocName=PDF_DVB_SR1_GUIDE&RevisionSelectionMethod=LatestReleased

Installation, configuration and user guide of the GEONETCast Toolbox plug-in for ILWIS 3.7

http://www.itc.nl/PDF/Organisation/Scientific%20departments/WRS/GNC_toolbox_manualXML12.pdf

- (Freeware) software: Download, setup and use (incl. ILWIS and the GEONETCast Toolbox)
- Exercises/manuals for using GEONETCast-data by applying ILWIS & GeonetCast-Toolbox (including product-data import and visualisation of data)

Other useful links

http://www.eumetsat.int/website/home/Data/DataDelivery/EUMETCast/GEONETCast/ - Information from EUMETSAT
http://www.eumetsat.int/website/home/TechnicalBulletins/EUMETCast/DAT_2082113.html - DVB-S2 Reception Station Setup/Requirements , http://www.satsignal.eu/ , http://www.itc.nl/Pub/WRS/WRS-GEONETCast/GEONETCast-toolbox.html

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Good bye !

THANK YOU FOR YOUR ATTENTION!

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