

# ***EUMETCast***

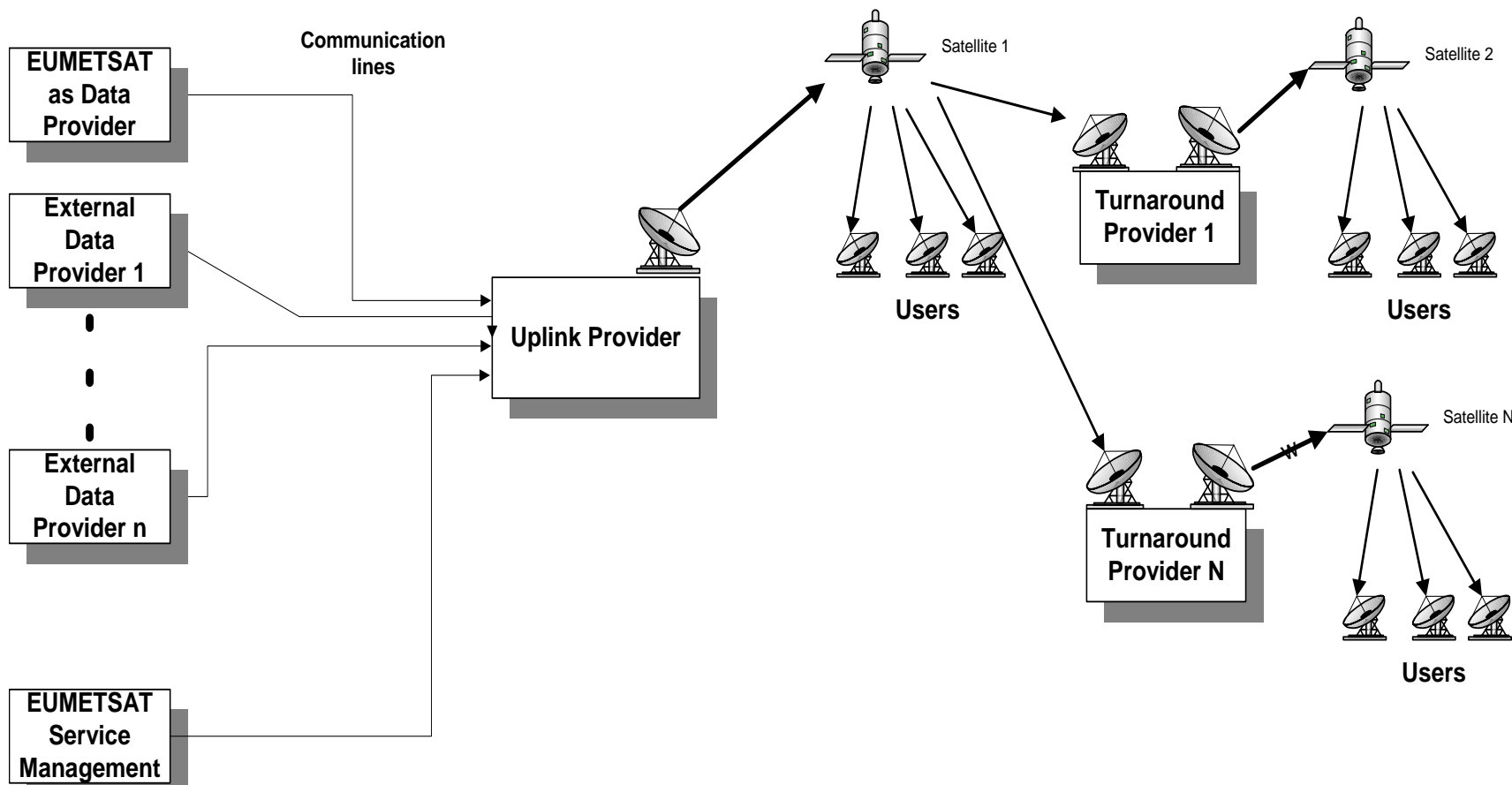
***EUMETSAT's Broadcast System***

***for Environmental Data***

# Concept & Overview

- Generic, multi-mission dissemination system based on the standard DVB multicast technology
- Use of commercial telecommunication satellites
- Allowing use of off-the shelf, commercial, inexpensive equipment
- DVB/MPEG-2 based transport for carrying IP datagrams
- Use of a set of broadcast satellite forward channels (no return channel)
- Components:
  - Data providers
  - Service management provider (EUMETSAT)
  - Uplink service provider
  - Turn around service provider(s)
  - Satellites
  - (Reference) Reception stations

# Components Figure



# EUMETCast Ku-Band Coverage

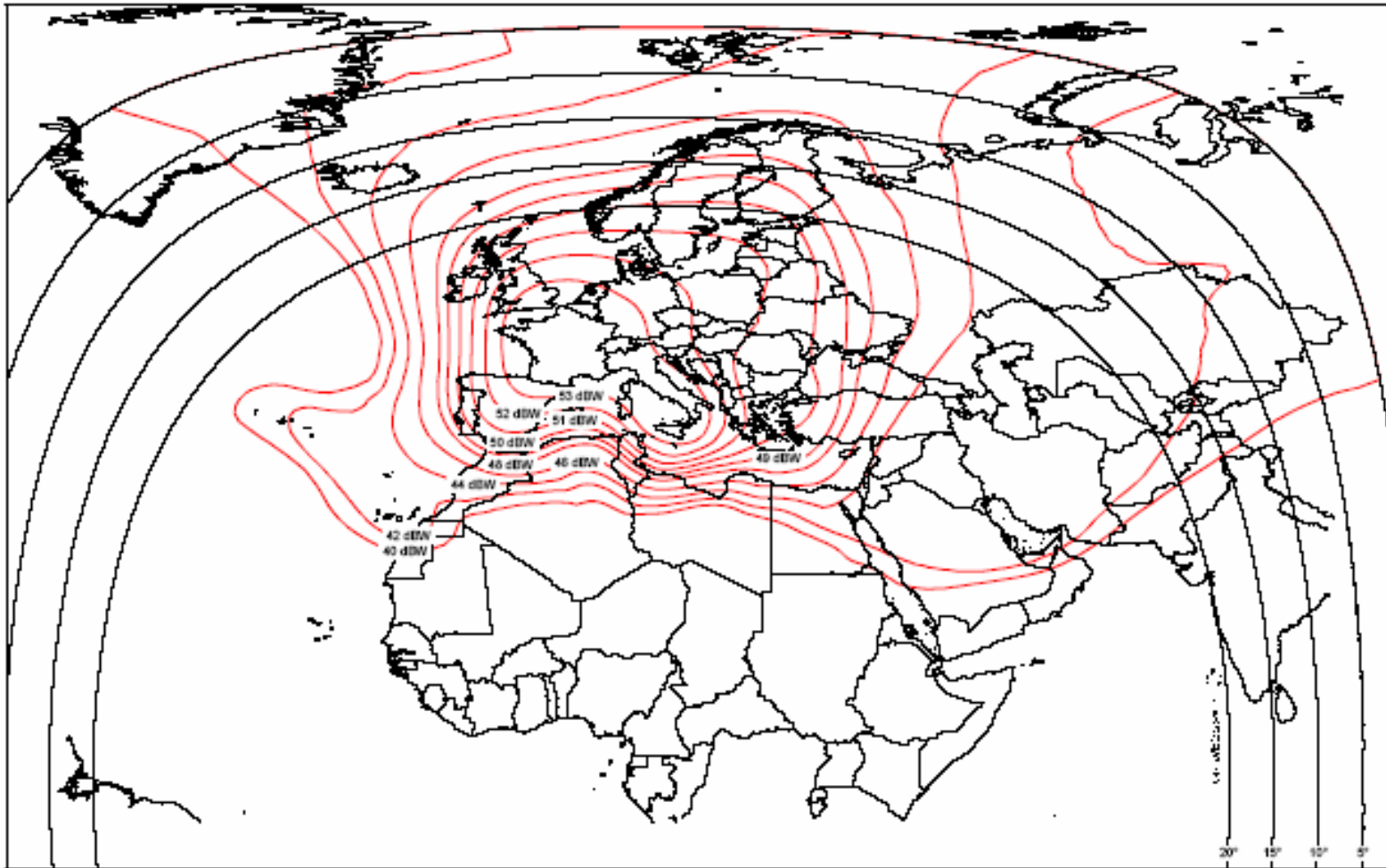
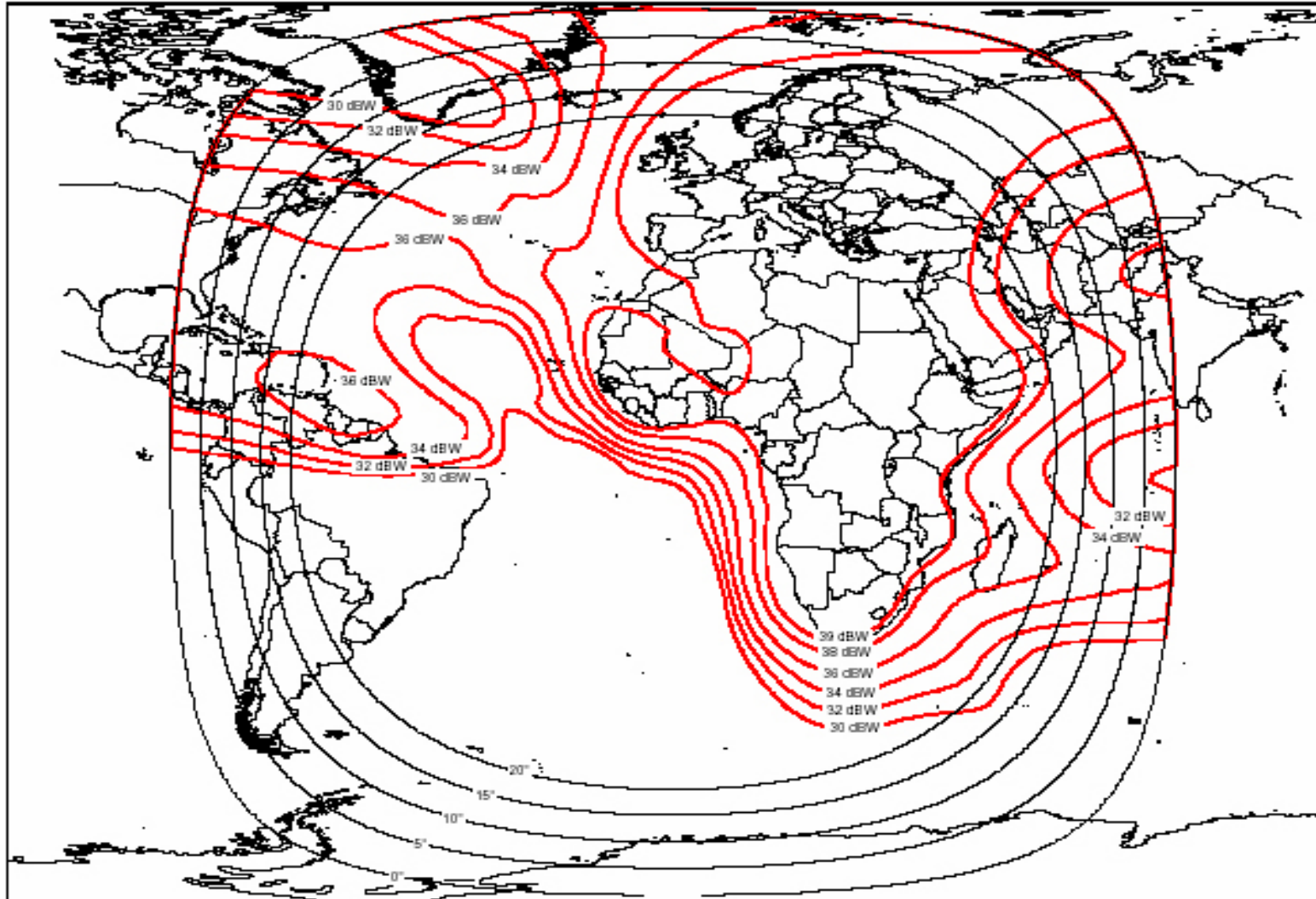


Figure 15 . HOT BIRD™ 6 Ku-band Transmit Coverage

# EUMETCast C-Band Coverage



# Components

- Reception Stations

- Antenna:

- \* Size (diameter) depending on EIRP figure at location (=> table)

- LNB:

- \* For Ku-band: standard digital TV LNB
    - \* For C-band: different brands, proposed by service provider and used at EUMETSAT: California Amplifier 140105-1

# Components

- DVB Receiver Cards used at EUMETSAT
  - \* TechniSat SkyStar2
  - \* BroadLogic V@box 2030
  - \* Pentamedia Pent@value
- Workstations
  - \* Standard / state-of-the-art PC (with USB port)
- Software
  - \* Operating Systems: Windows suite & LINUX
  - \* EUMETCast Client Software: tq®-TELLICAST
    - Supporting processing, monitoring & logging of incoming data
- Configuration constraints:
  - \* Recommended/tested combinations:
    - Ku/C-band <=> DVB receiver card <=> Operating System



# Components

Antenna size recommendations  
providing sufficient rain margin in C- and KU-band,  
based on EUMETSAT experience,  
scaled from highlighted antenna sizes

Ku-Band		C-Band	
Contour (dbW)	Antenna Size diameter (m)	Contour (dbW)	Antenna Size diameter (m)
<b>53</b>	<b>0.85</b>	<b>39</b>	<b>2.40</b>
52	0.95	38	2.69
51	1.07	37	3.02
50	1.20	36	3.39
49	1.35	35	3.80
48	1.51	34	4.27
47	1.70	33	4.79
46	1.90	32	5.37
45	2.14	31	6.03
44	2.40	30	6.76
43	2.69	29	7.59
42	3.02		



# Components: Parts and Costs of a Reception Station

DVB Standard Hardware

LNB Ku-/C-band & Satellite Dish

200/1500 EUR

DVB PCI Card

100 EUR

DVB Multicast Client Software

60 EUR

EUMETCast Key Unit (EKU)

40 EUR

PC, Hard Disk, Ethernet

1000 EUR

1.400/2700 EUR



# Data Rate per Service (average per day in Kbps)

- High Rate SEVIRI Image Data 710
- Low Rate SEVIRI Image Data 15
- Rapid Scanning Service (RSS) 48
- High Resolution Image (HRI Met-7) 40
- Indian Ocean Data Coverage (IODC) 42
- ATOVS Retransmission Service (EARS) 30
- Foreign Satellite Data (FSD) 14
- Data Collection and Retransmission (DCP) 7
- Meteorological Data Dissemination (MDD) 4
- Meteorological Products from MSG MPEF 39
- Meteorological Products from SAFs 55
- DWDSAT 190
- Basic Meteorological Data for WMO RA VI 10
- Vegetation Product (3 times per month) 3

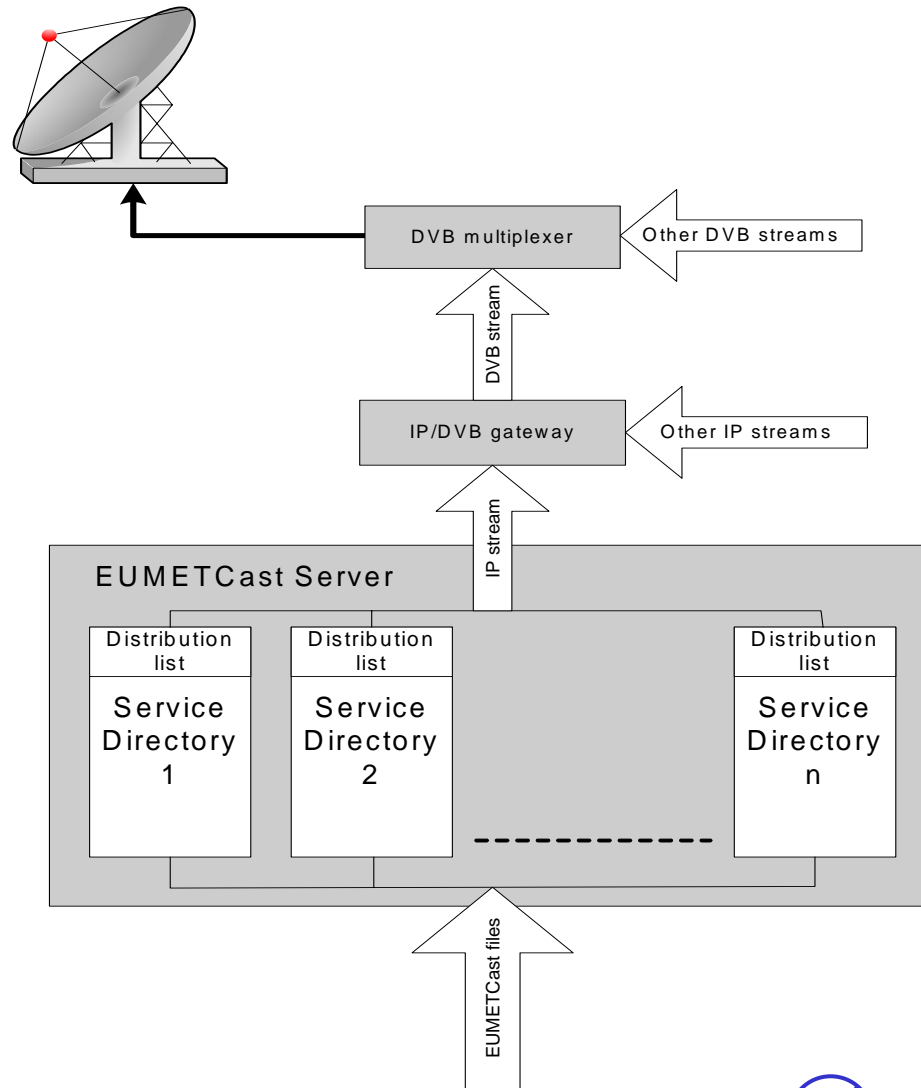
# Current Allocation of Services on Channels

PID	Multicast Channel	Services	Bandwidth
500	Channel 1	EARS & Rapid Scan Service	0.300 Mbps
	BMD-RAVI	Basic Meteorological Data for WMO RA VI	0.064 Kbps
	SAF-Europe	Land SAF European Products OSI SAF KNMI Surface Wind Product	0.064 Kbps
300	Channel 2	High Rate SEVIRI (all 12 spectral channels)	1.420 Mbps
301	Channel 3	Low Rate SEVIRI: (IR_016, IR_039, IR_108, VIS006, WV_062) Meteosat-5 HRI (IODC) Meteosat-7 HRI Foreign Satellite Data: (GOES-9/MTSAT, GOES-10, GOES-12) Meteorological Products from MSG MPEF SAF Products (OSI SAF and non European Land SAF Products) DCP MDD Vegetation Product S10NDVI	0.338 Mbps
302	DWDSAT	DWDSAT	1.536 Mbps

- Channels 2 & 3 are fed into the C-Band turn around service



# EUMETCast Multicast Configuration

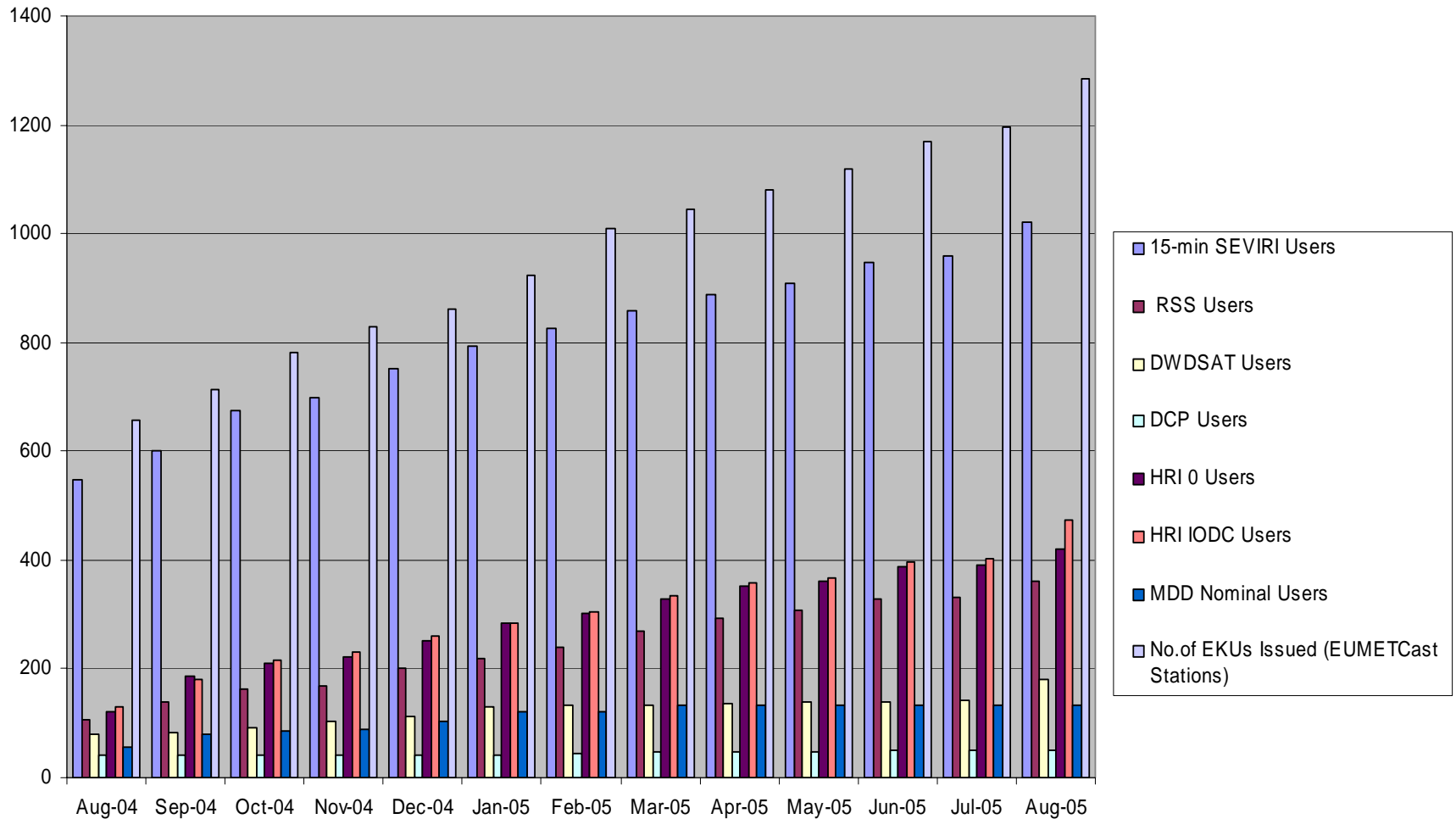


# EUMETCast Registration Figures

End of August 2005, the following figures have been reached:

- Total number of EUMETCast Stations 1285
- Meteosat-8 Service / 15 min SEVIRI 1021
- Rapid Scanning Service (RSS) 362
- DWDSAT Service 181
- DCP Service 51
- HRI-0 (Met-7) Service 421
- HRI IODC (Met-5) Service 473
- MDD Service 132

# EUMETCast Delivered Services (Registration Figures)

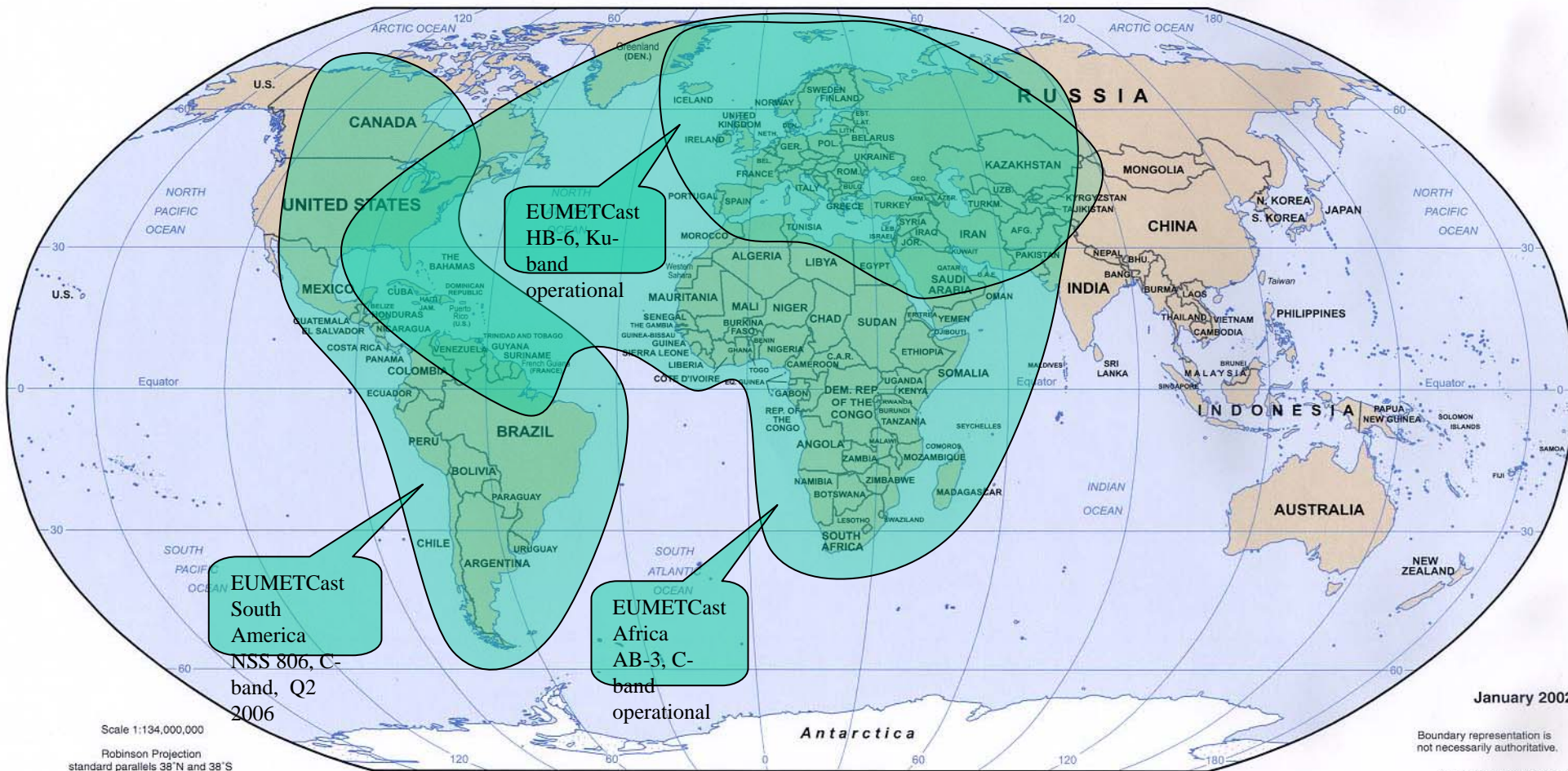


# EUMETCast Service Availability

	<b>Ku-Band</b>	<b>C-Band</b>
Feb-05	99.97 %	99.75 %
Mar-05	100.0 %	99.28 %
Apr-05	99.96 %	100.0 %
May-05	99.99 %	99.99 %
Jun-05	99.90 %	99.99 %
Jul-05	99.94 %	100.0 %



# EUMETCast Coverage



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Boundary representation is not necessarily authoritative.

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