

EUMETCast

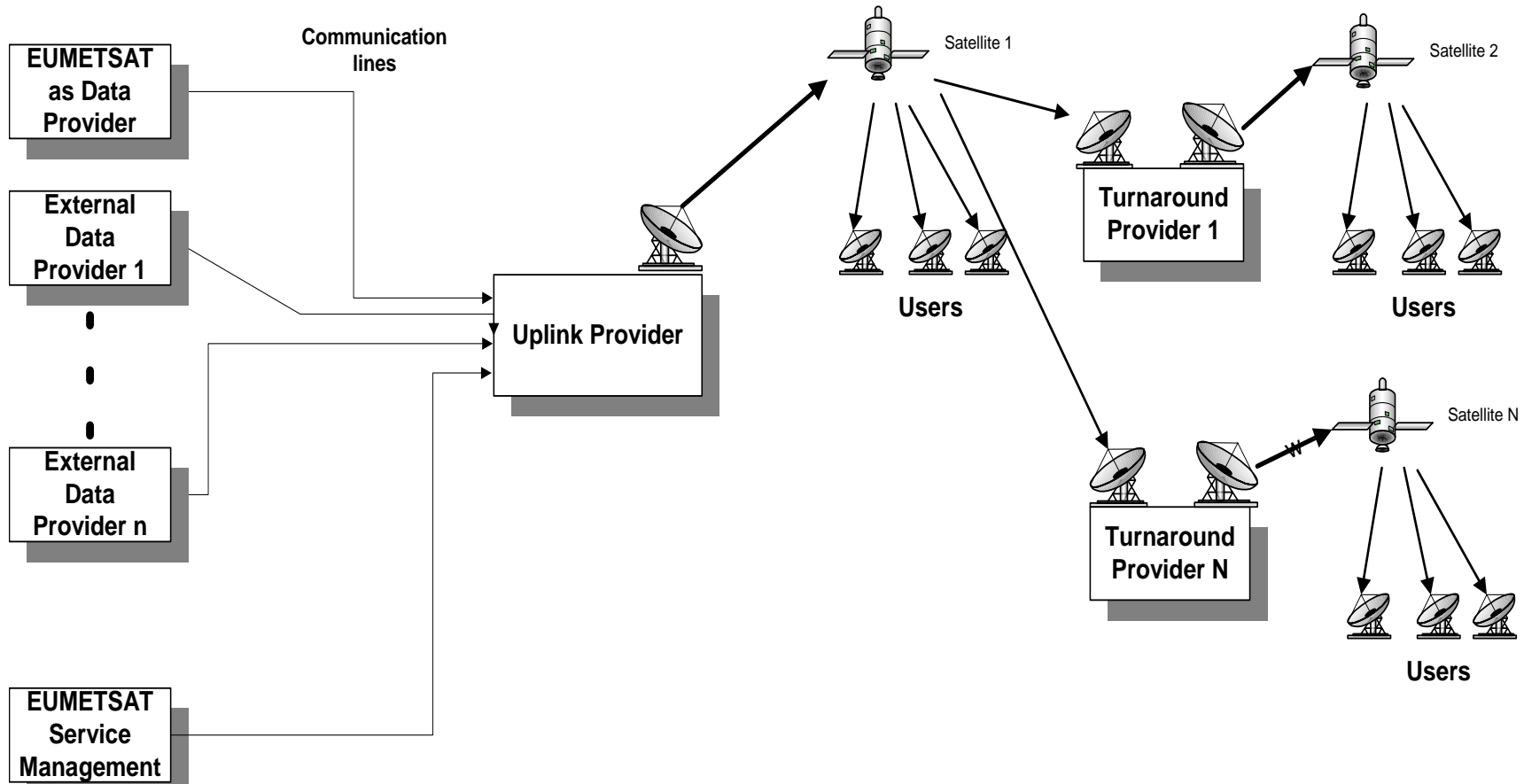
EUMETSAT's Broadcast System

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

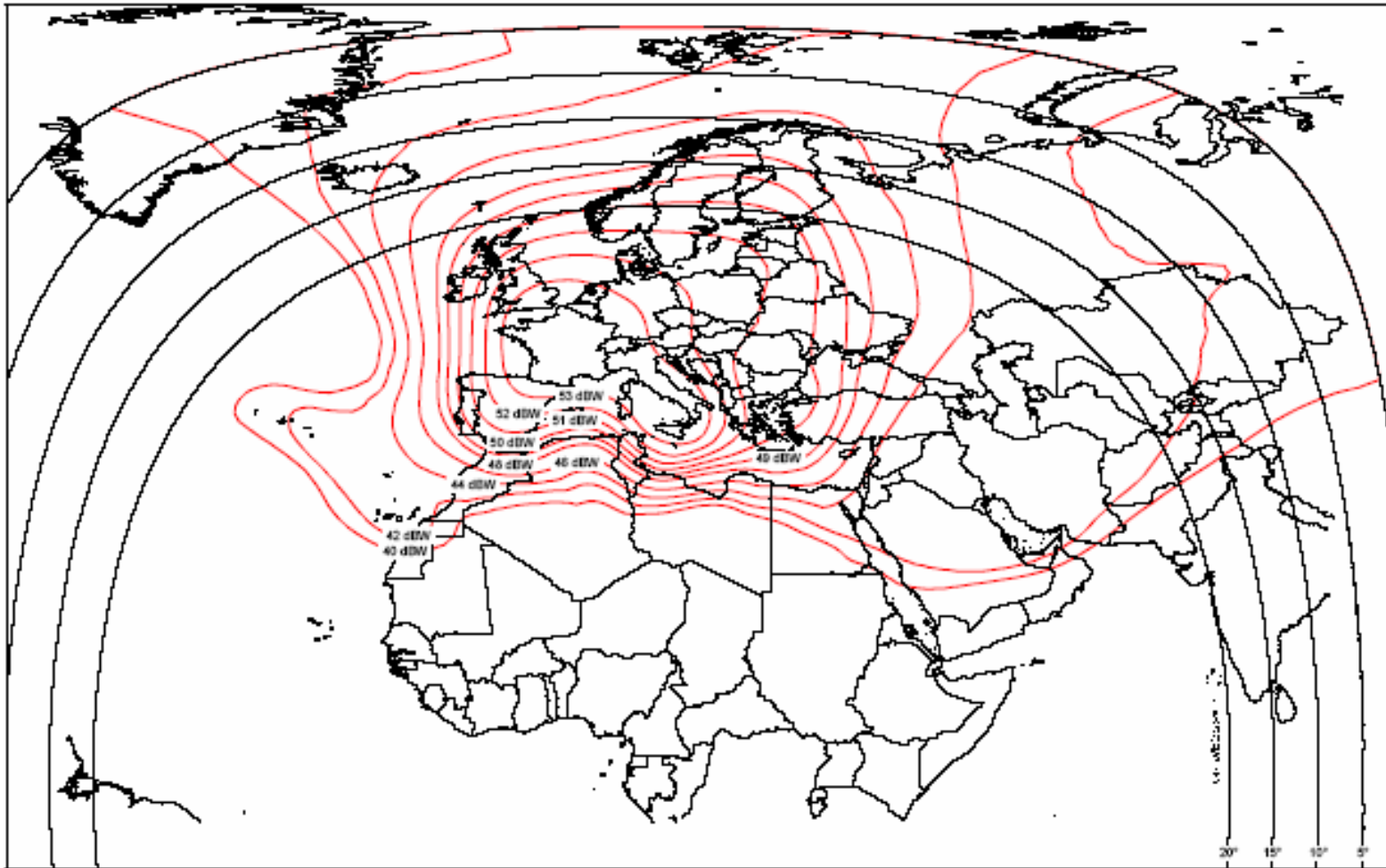
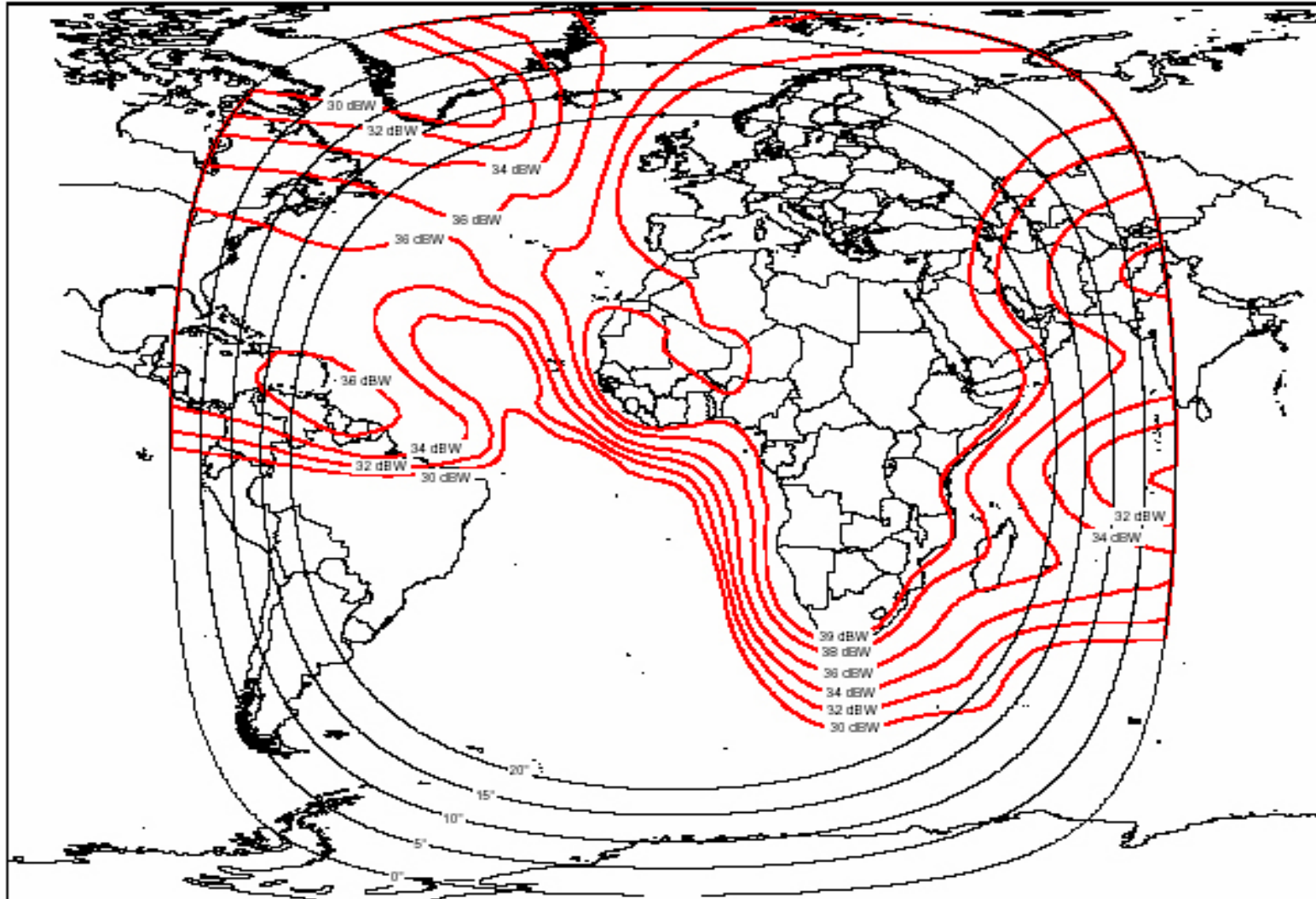


Figure 15 . HOT BIRD™ 6 Ku-band Transmit Coverage

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)
53	0.85	39	2.40
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

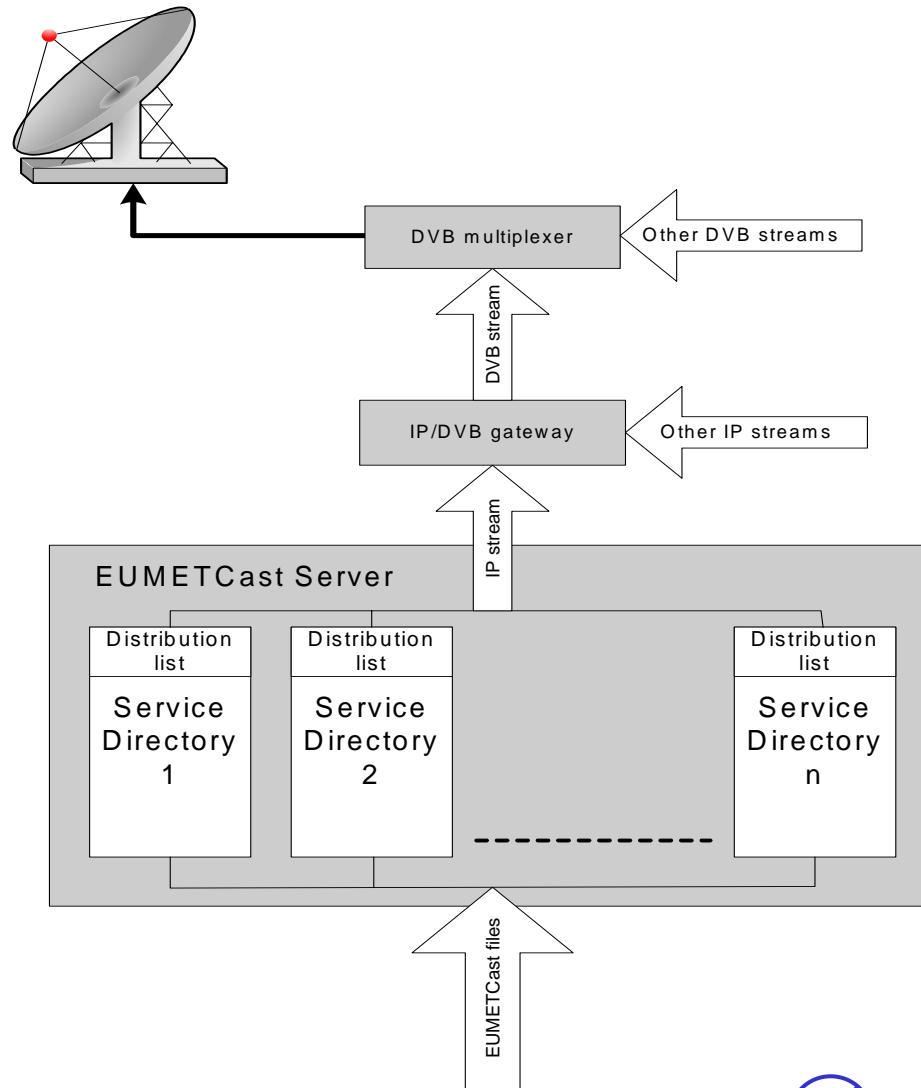
Current Allocation of Services on Channels

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



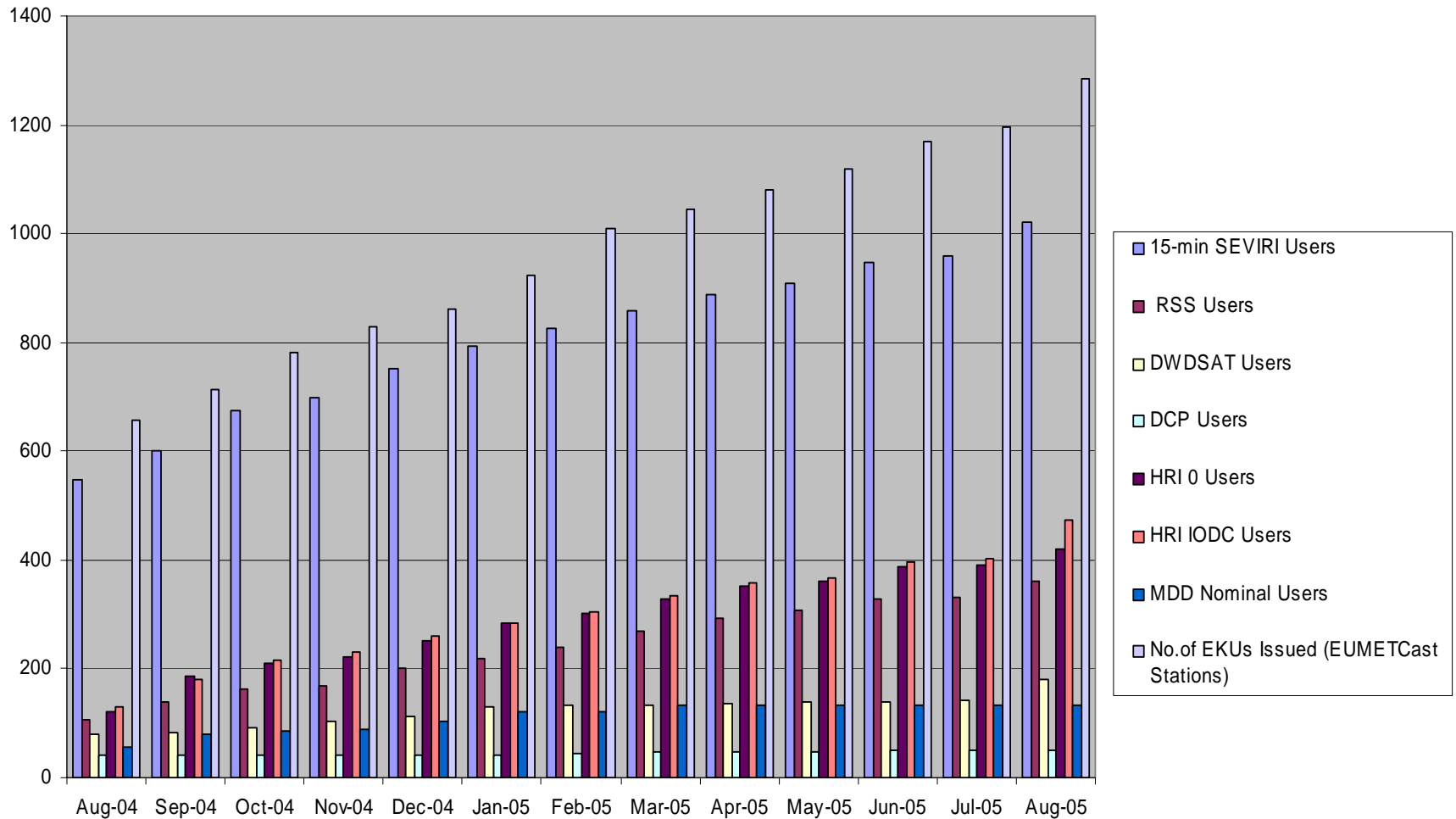
EUMETCast Registration Figures

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

	Ku-Band	C-Band
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

