Global Climate Observing System

CBS Lead Centers for GCOS – 4th Meeting

GCOS Implementation Manager – Tim Oakley

Santiago, Chile, 8-10 October 2013

A bit about me.

- **29 years working for the UK Met Office.**
- **Most of this time in R&D.**
  (Upper-Air: Radiosondes and later Remote Sensing).
- **International engagement (WMO/CIMO, EUMETNET).**
- **2008 – 2012 Network Manager (Upper-Air Operations).**
- **2012 : Seconded to WMO/WIGOS Project Office.**
- **2013 : GCOS Implementation Manager**
  - Service provided by Met Office initially for 2 years

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WMO CHINA Radiosonde Intercomparison 2010

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GCOS Implementation Manager Role

- **Manage technical support/implementation projects (primarily GSN & GUAN in developing countries)**
- **Maintain liaison with CBS Lead Centres for GCOS and their focal points**
- **System/project/Instrument specifications**
- **Procurement (through WMO)**
- **Annual meeting of the GCM Board**
- **Annual meeting of the Ad-hoc group on GSN & GUAN (AGG)**

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AOPC Atmospheric Observations Panel for Climate
GCOS • GOOS • WCRP

TOPC Terrestrial Observations Panel for Climate
GCOS • GTOS • WCRP

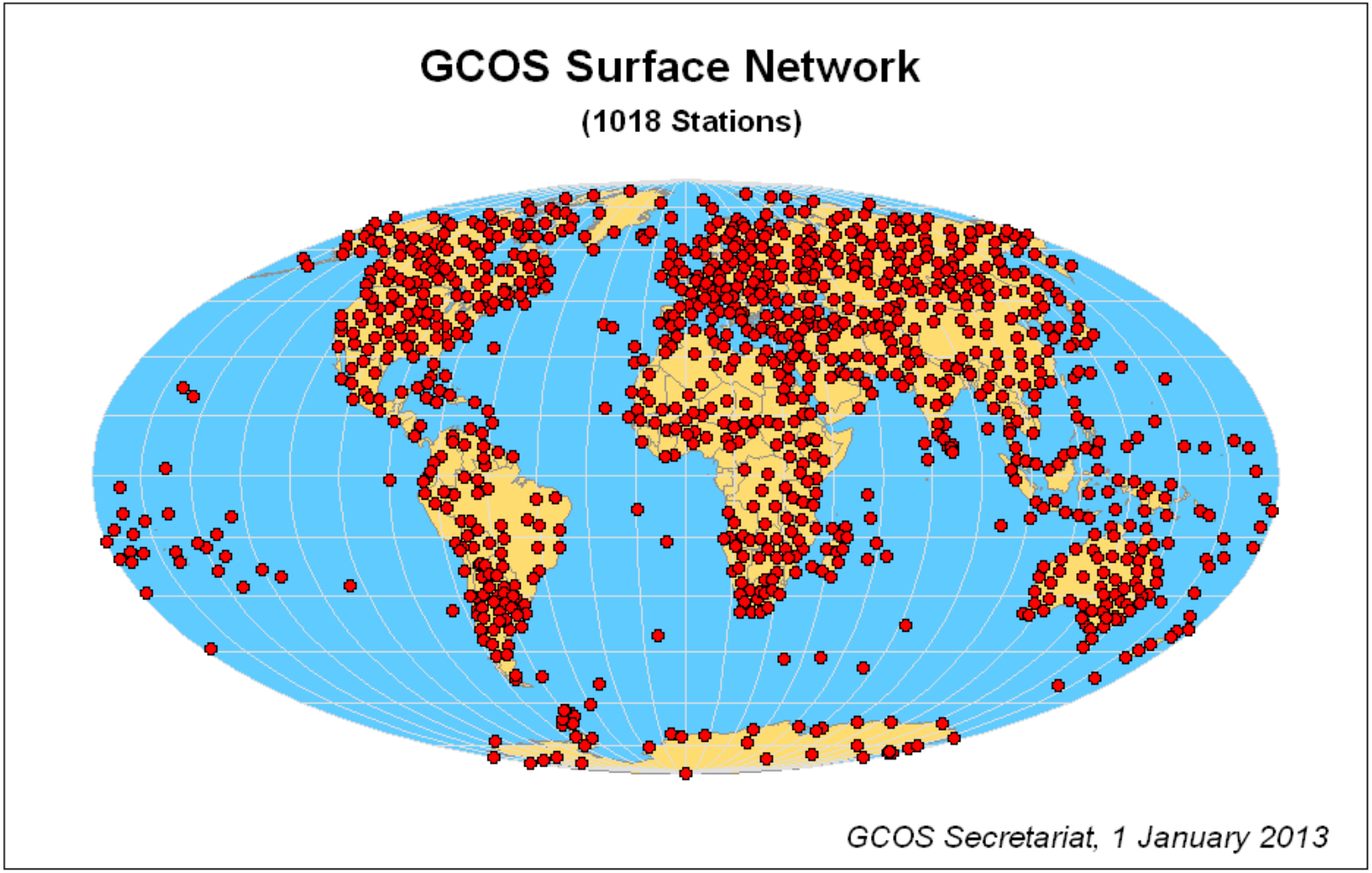
GCOS • GOOS • WCRP
OOPC Atmospheric Observations Panel for Climate

Implementation Manager

Whilst GCOS works with all the 50 GCOS Essential Climate Variables (ECV's) with equal priority, in practice my work as the Implementation Manager is currently focused on 2 (3) networks:

- GSN (GCOS Surface Network, which also now includes the Regional Baseline Climate Network RBCN)
- GUAN (GCOS Upper Air Network). 
- (BSRN – Baseline Surface Radiation Network)

GSN Network



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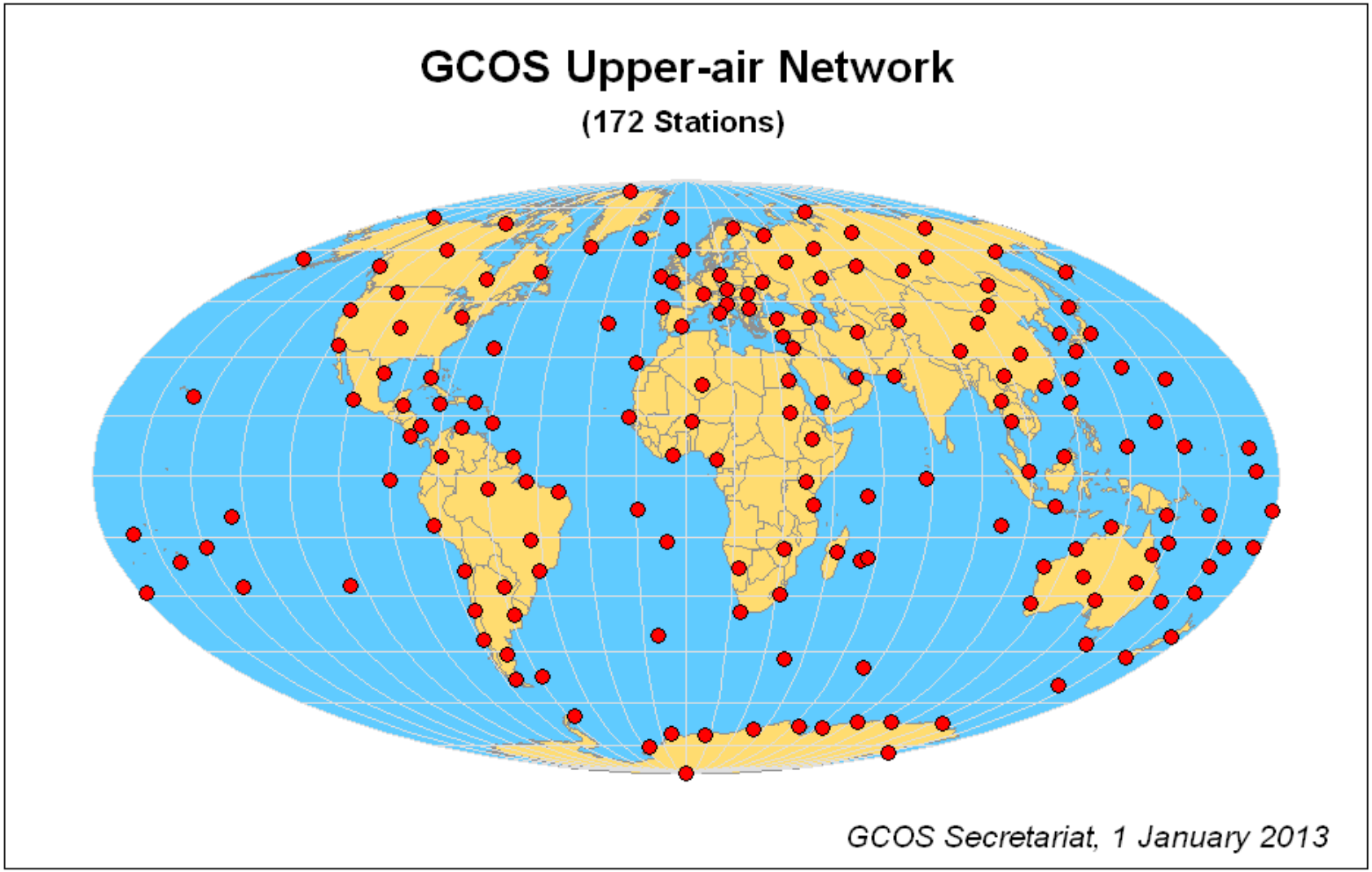
GUAN Network



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GCOS Cooperation Mechanism (GCM)

- The GCM **was established to identify and make the most effective use of resources available for improving climate observing systems in developing countries, particularly to enable them to collect, exchange, and utilize data on a continuing basis in pursuance of the UNFCCC.**

2012/13 Projects/Activites

- **Funded through the GCOS Cooperation Mechanism (GCM)**
- **Upgrade of 11 GSN stations in Madagascar**
- **Upgrade of 8 GSN stations in Angola**
- **Upgrade of 2 GSN stations & improved communications in DRC**
- **Upgrade of 2 GSN stations in Cook Islands**
- **Upgrade of 4 GSN stations in Cuba**
- **Supply of Radiosondes/Ballons to 5 GUAN stations**
- **Radiosonde/Balloons and new ground-system for Gan, Maldives**
- **Upgrade of telecommunications in Zambia**

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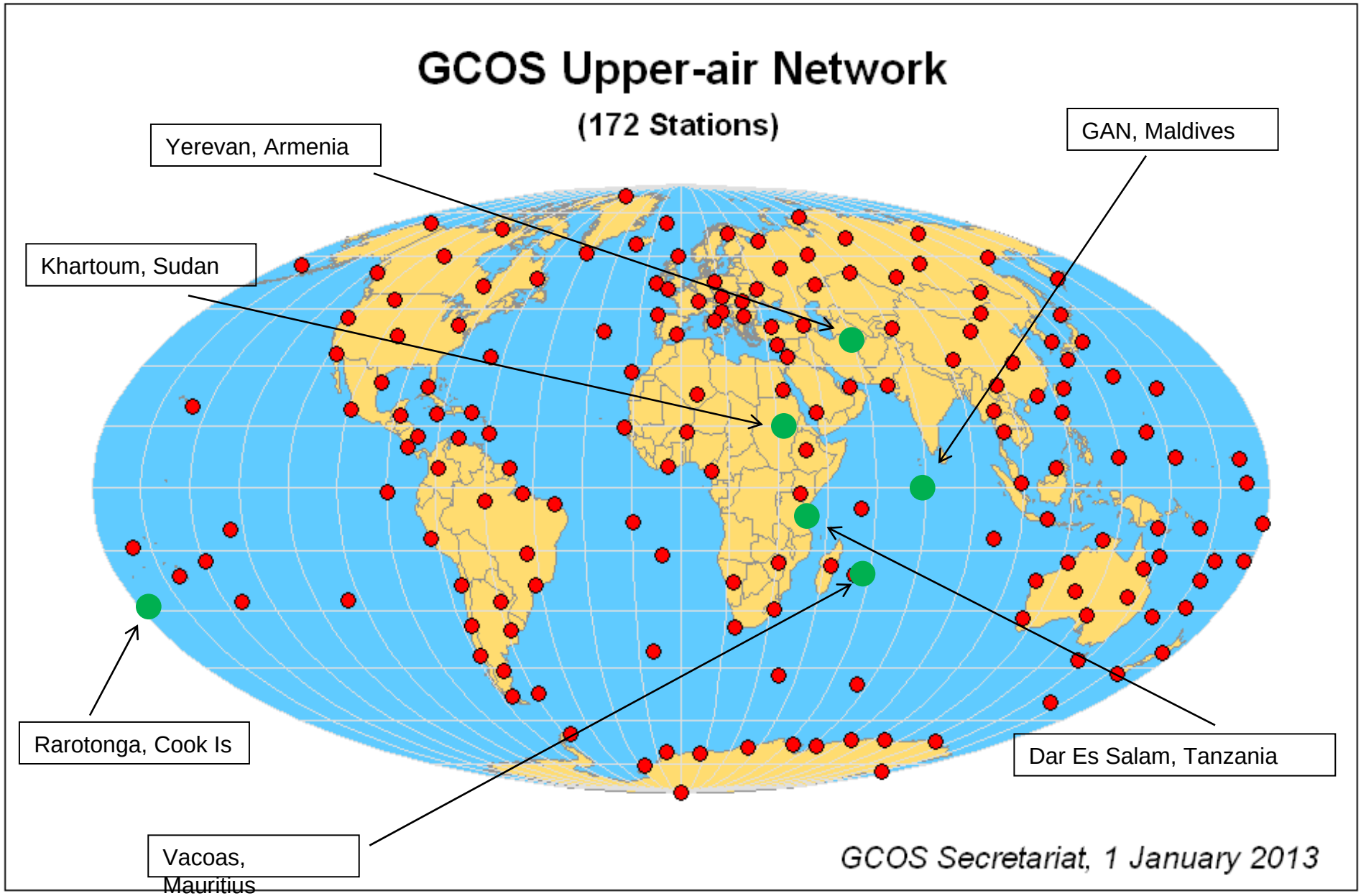
GUAN Radiosondes



CAPACITY DEVLOPEMENT

Windhoek, Namibia (2007) – Radiosonde training workshop for Region 1, attended by 30 participants representing 19 African countries. Training covered all aspects of radiosonde operations, data monitoring and the user benefits of high-quality upper-air data.

MONITORING

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GCOS Minimum Requirements

GSN

- Monthly means of daily maximum, minimum and mean temperature
- Monthly precipitation amounts
- *If only monthly values, number of days in calculation*
- Monthly CLIMAT message

GUAN

- Temperature up to 30hPa
- Humidity up to tropopause
- Wind direction/speed to 30hPa
- 1 report - 25 days each month
- TEMP message

http://www.wmo.int/pages/prog/gcos/Publications/GCOS-144_en.pdf

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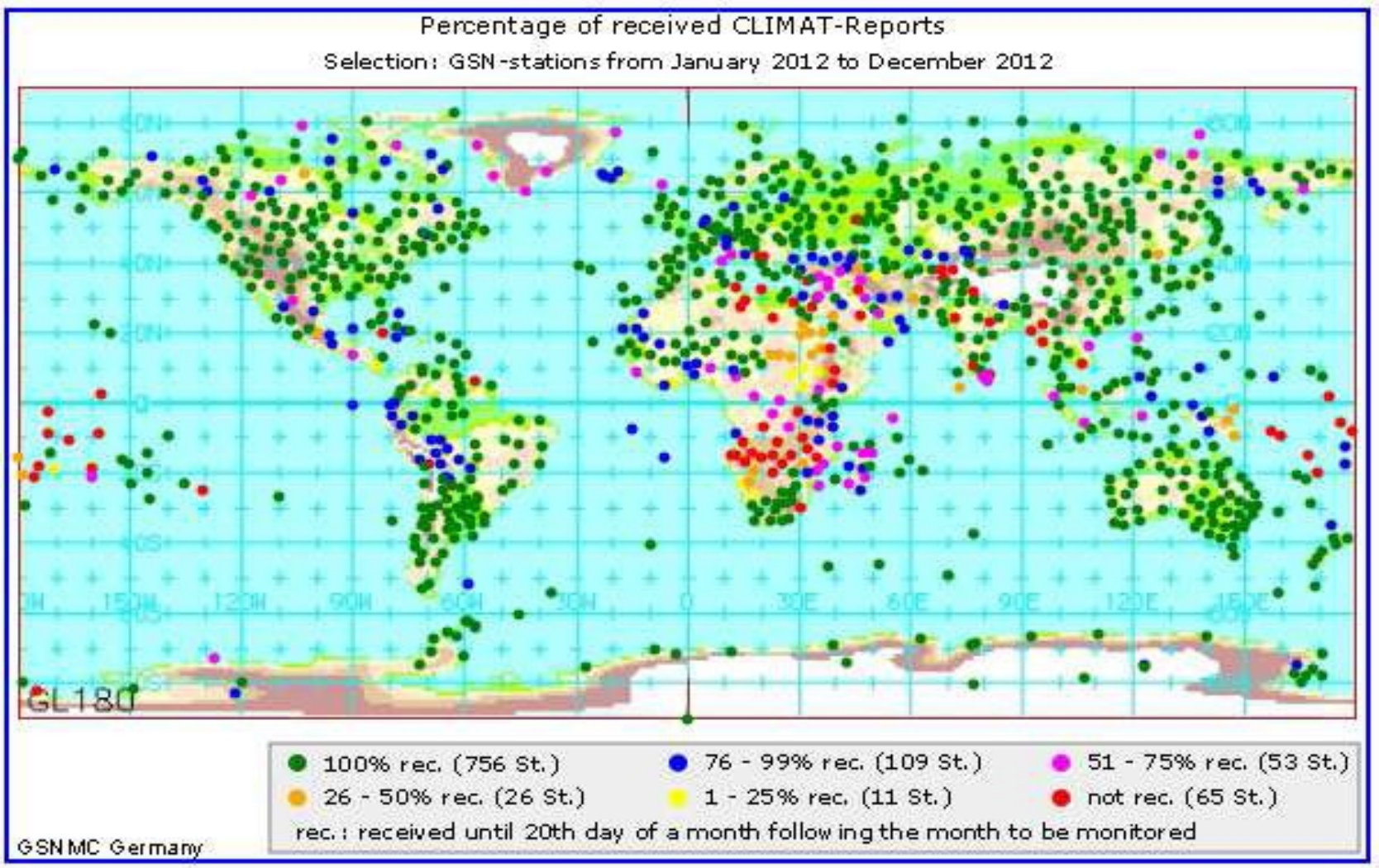
THANKYOU



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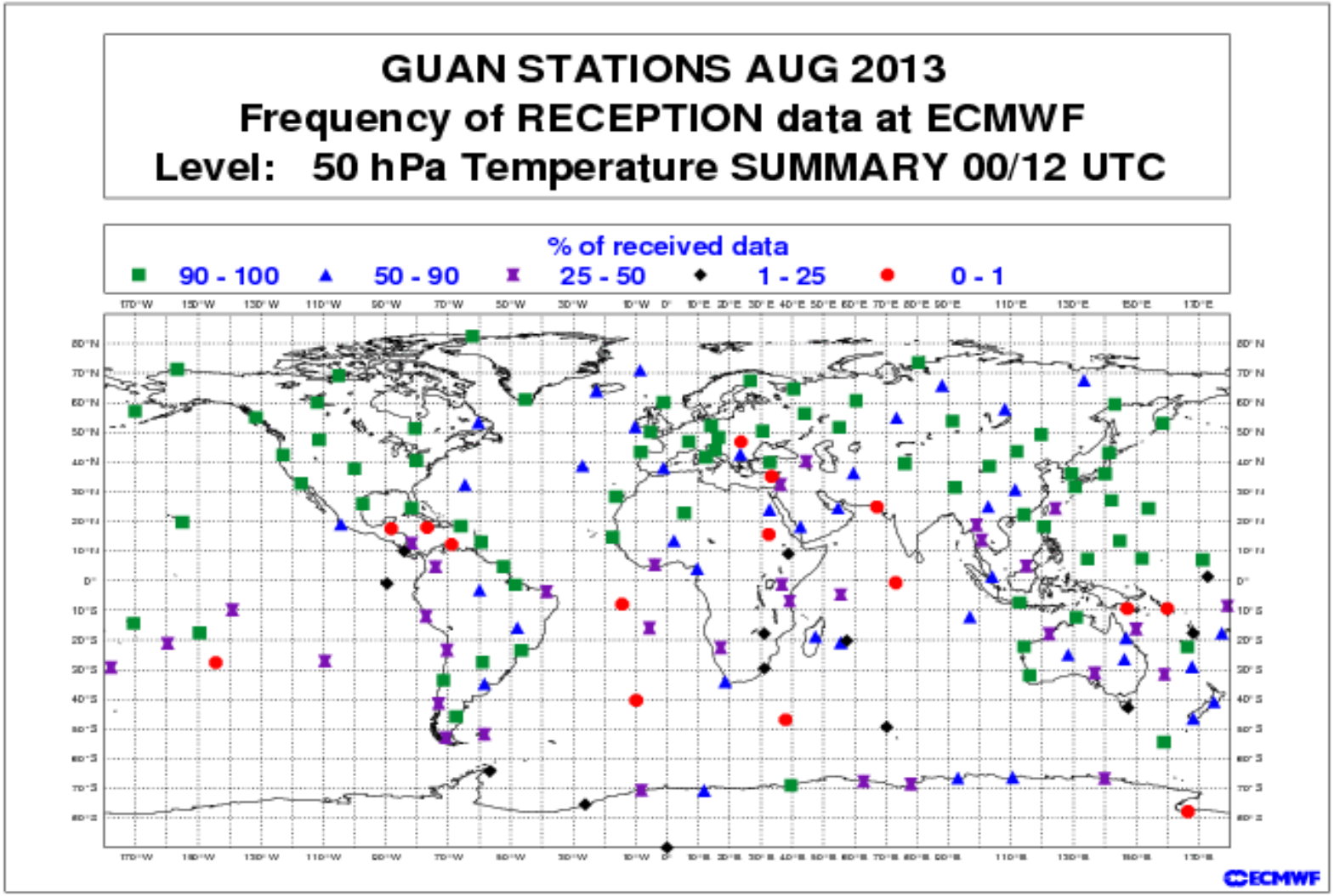
ECMWF Monitoring



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Minimum GUAN requirement (% met for month, region 3)

Region	WMO No	SITE	Country	Total	1	2	3	4	5	6	7	8	9	10	11	12	AVG
3	87576	Buenos Aires	Ag	456	112	100	232	220	244	232	240	180	208				196
3	87155	Resistencia Aero	Ag	449	104	88	192	196	220	224	236	224	216				189
3	87860	Comodoro Rivada	Ag	440	104	80	172	152	244	240	240	236	232				189
3	81405	Cayenne/Rocham	FG	540	216	112	192	148	160	168	192	208	200				177
3	82193	Belem	Brazil	527	152	136	160	152	164	196	172	228	208				174
3	85586	Sanot Domingo	Chile	461	112	104	208	164	160	188	196	180	168				164
3	83779	Marte,	Brazil	524	144	136	180	148	152	168	120	132	176				151
3	82332	Manaus	Brazil	528	88	120	104	124	144	172	172	176	148				139
3	88889	Mount Pleasant A	Fk	282	116	108	116	108	92	112	116	108	112				110
3	80222	Bogota/El Doradc	Co	255	124	112	116	116	116	96	112	92	96				109
3	83378	Brasilia AP	Brazil	529	64	76	56	72	148	120	172	144	124				108
3	80001	San Andres		251	120	100	120	116	116	108	100	96	96				108
3	85442	Antofagasta,	Chile	268	120	104	116	112	100	88	96	108	104				105
3	85469	Isla de Pascua	Chile	263	92	96	88	88	104	88	112	104	96				96
3	85799	Puerto Montt	Chile	257	116	88	88	100	56	80	80	92	92				88
3	85934	Punta Arenas	Chile	243	104	84	104	80	88	80	32	88	84				83
3	84628	Lima-Callao/Chav	Pr	240	16	104	80	76	96	104	96	48	52				75
3	82397	Fortaleza	Brazil	208	64	40	48	44	36	60	28	72	96				54
3	84008	San Cristobal	Eq	53	0	0	0	0	0	0	68	52	68				21

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Challenges

- **Reduced funding from sponsors in support of GCM (Owing to:- Cuts nationally, priorities, opportunities)**
- **Increasing demand to support 'baseline' network (More countries, both operational & infrastructure, limited expertise, focus on QMS)**
- **Are minimum requirements good enough? (quality, resolution, coding, metadata)**
- **Supporting other networks (marine, hydrology, terrestrial.....)**
- **Different challenges & priorities across regions (communications, QMS)**

My thoughts/requests for this meeting

- **Much is still new to me and I have much to learn**
- **Quality Management (QMS) is fundamental**
- **Regular monitoring and communication is key**
- **Plan to review the monitoring statistics and methods in detail**
- **Your engagement, experiences and issues are important**
- **Likelihood we will need to include other observing systems in the future**

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Thank you for your attention

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