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Plans for the Vienna Convention Trust Fund

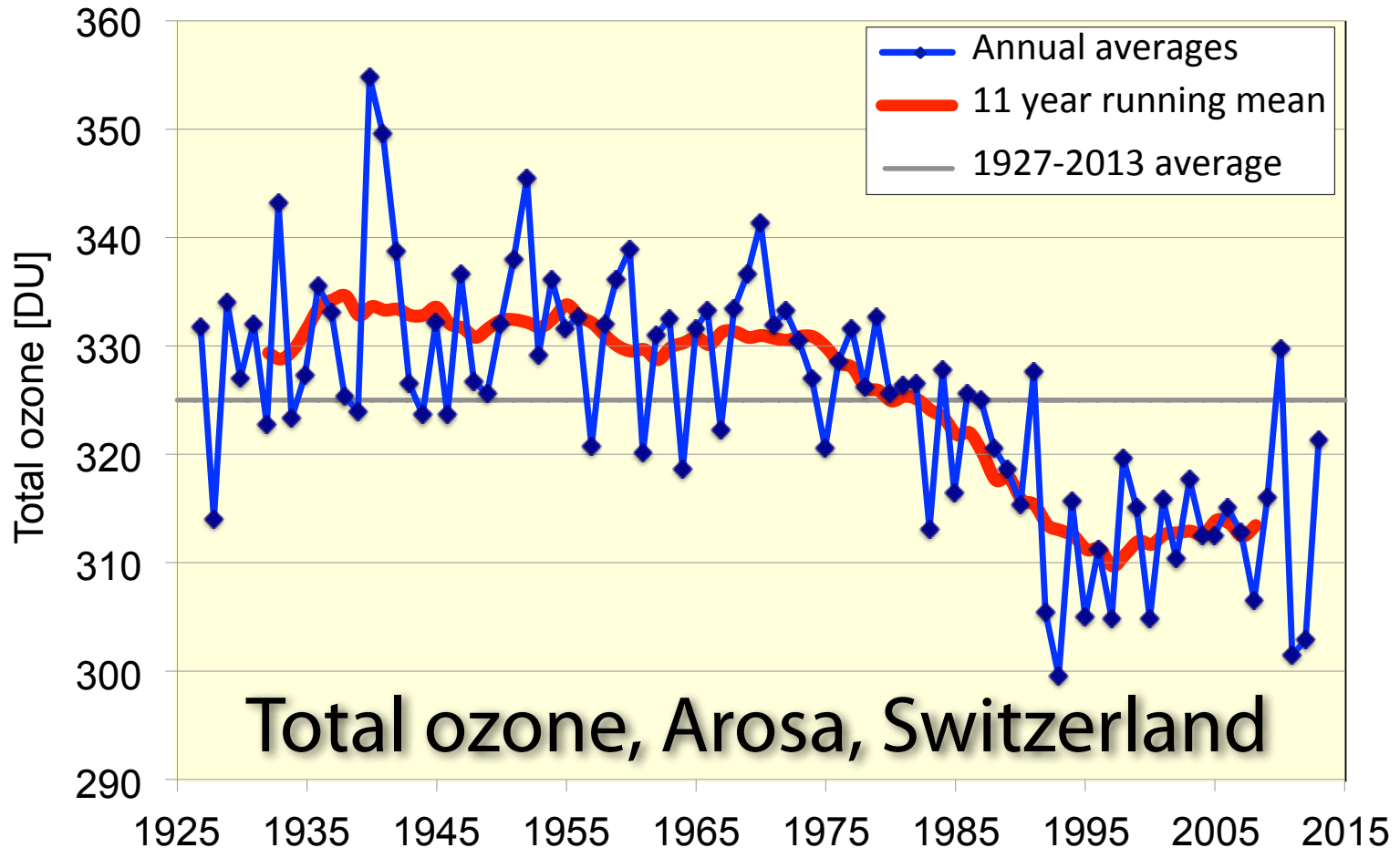
Geir O. Braathen

Atmospheric Environment Research Division, Research Department, WMO





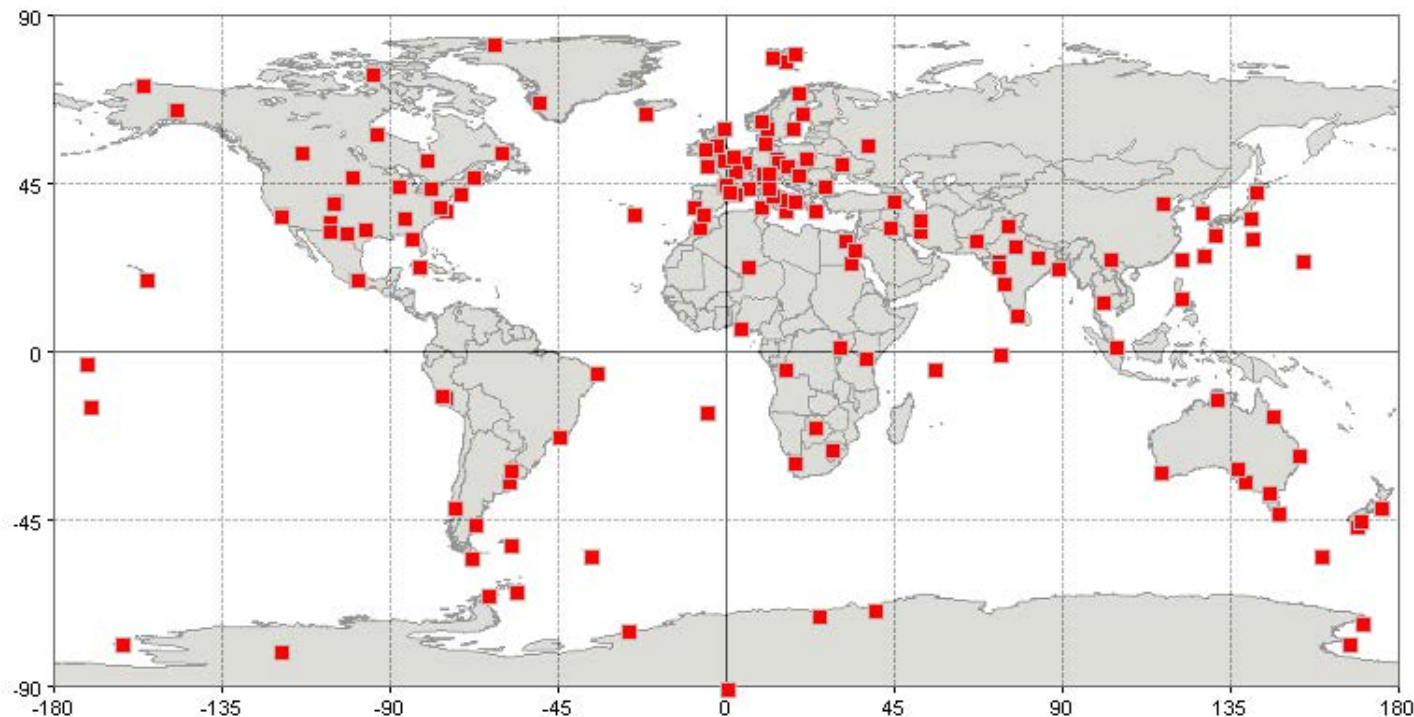
The importance of long term time series





With many stations world wide it is important to maintain a homogenous network

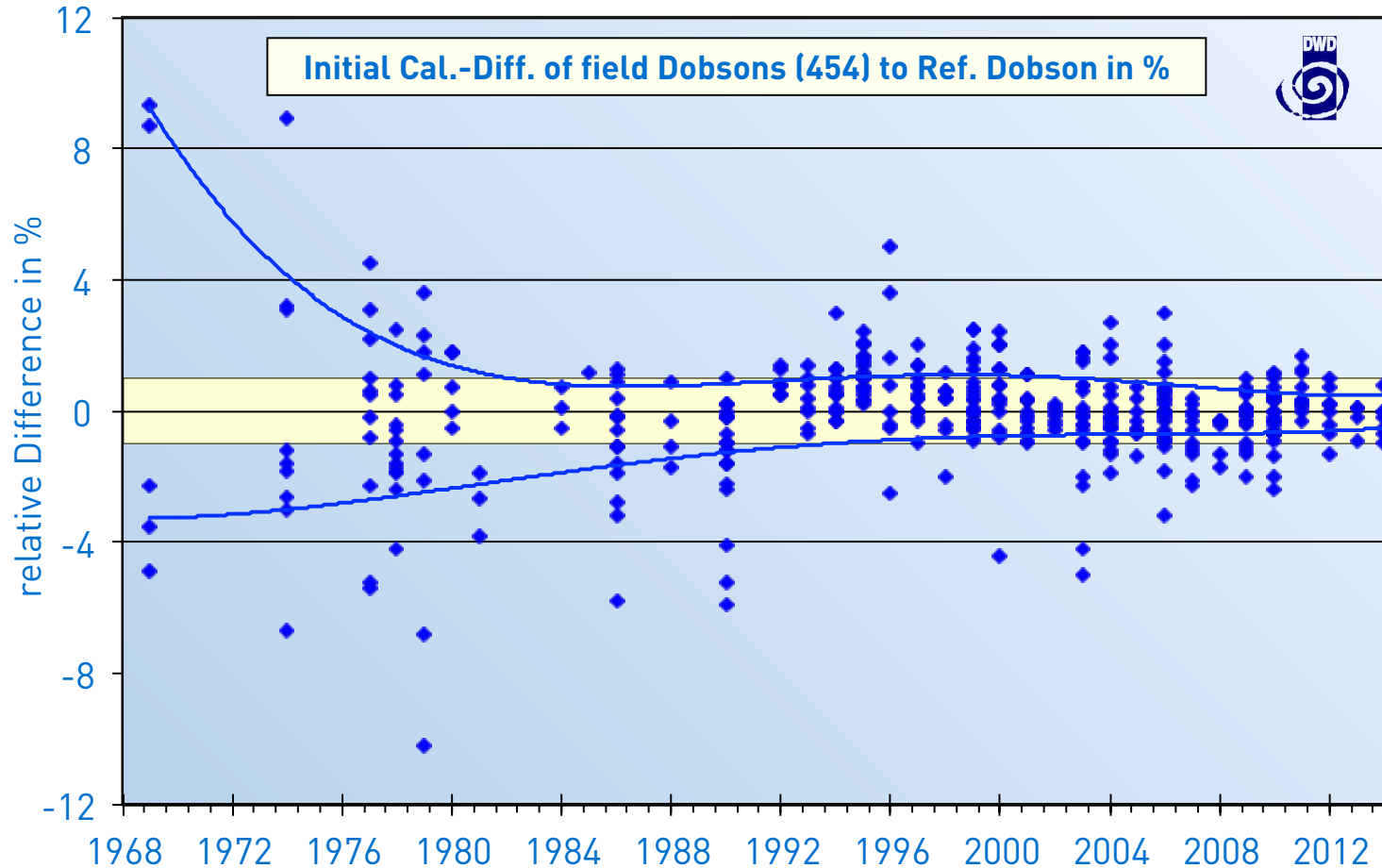
The global network of Dobson spectrophotometers



Report Date: 2014-11-18
Category: TotalOzone - Level 1.0
Instrument Type: Dobson



Regular intercomparisons since the late 1960s have resulted in a substantial improvement of the homogeneity of the global network of Dobson spectrophotometers



Instrument calibration ensures data quality across the global network

- ✎ **Instrument calibration campaigns (Dobson spectrophotometers)**
- ✎ **The campaigns in 2004 and 2009 would not have been possible without the support from the Vienna Convention Trust Fund for Research and Systematic Observations**



9 Dobsons intercompared in Egypt, 2004



9 Dobson intercompared in Irene, 2009

Calibration of Brewer instruments



 Brewer calibrations were carried out in Indonesia and Nepal during September 2006



Brewer calibration in Indonesia, 2006



Brewer calibration in Nepal, 2006



Capacity building ensures data quality across the global network

- ✎ **Data analysis workshops are well received by the participants.**
- ✎ **There is a big need for training of instrument operators. Support from the Vienna Convention Trust Fund for Research and Systematic Observations has been very useful.**



Data analysis workshop, Hradek Králove, Czech Republic, 2011. 34 participants from 22 countries representing 51 Dobson stations



Plans for the Trust Fund for the period 2014-16

- ✎ **Lack of activities since 2011 due to time needed for transfer and repair of old Dobson instruments**
- ✎ **Relocation of Dobson spectrophotometers with help from the Regional Dobson Calibration Centre for Europe (hosted by the German Weather Service, DWD)**
- ✎ **Dobson intercomparison campaigns carried out by the WMO/ GAW regional Dobson calibration centres**
- ✎ **Brewer Users' Group meeting and training course for Asian**
- ✎ **Additional Dobson instruments that are no longer in use and that might be donated**
 - ✓ **Italy (1 or 2), Hungary, Greenland, Canada**

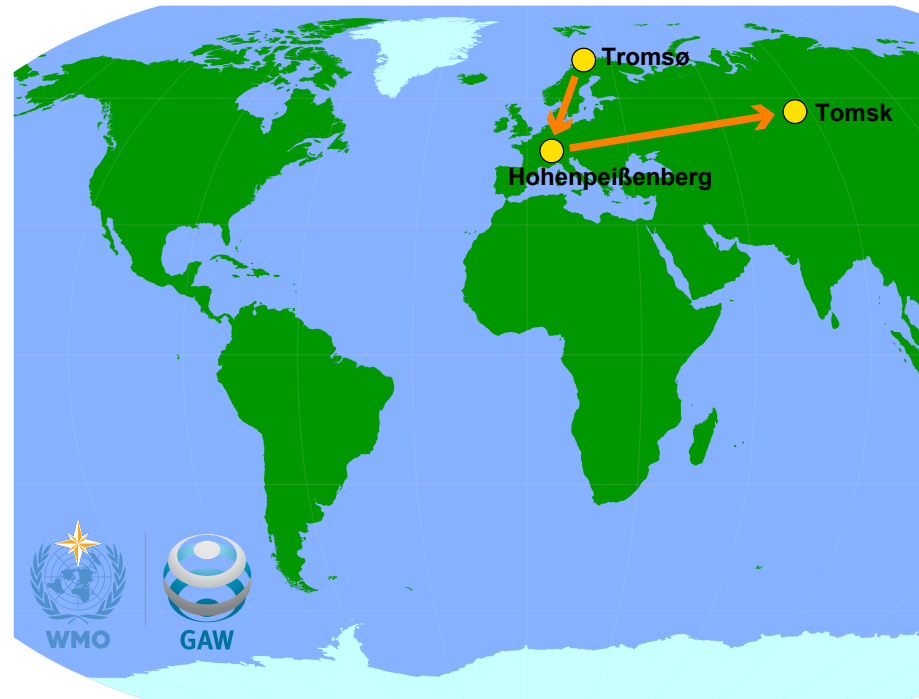
Relocation of Dobson spectrophotometres



 **Dobson no. 14 from Tromsø to Tomsk**

 **Dobson no. 8 from Spitzbergen to Sri Lanka**

- ✓ **Estimated cost approx. USD 20,000 per instrument, i.e. a total of 40,000 USD.**
- ✓ **Dates: Spring and autumn 2015.**

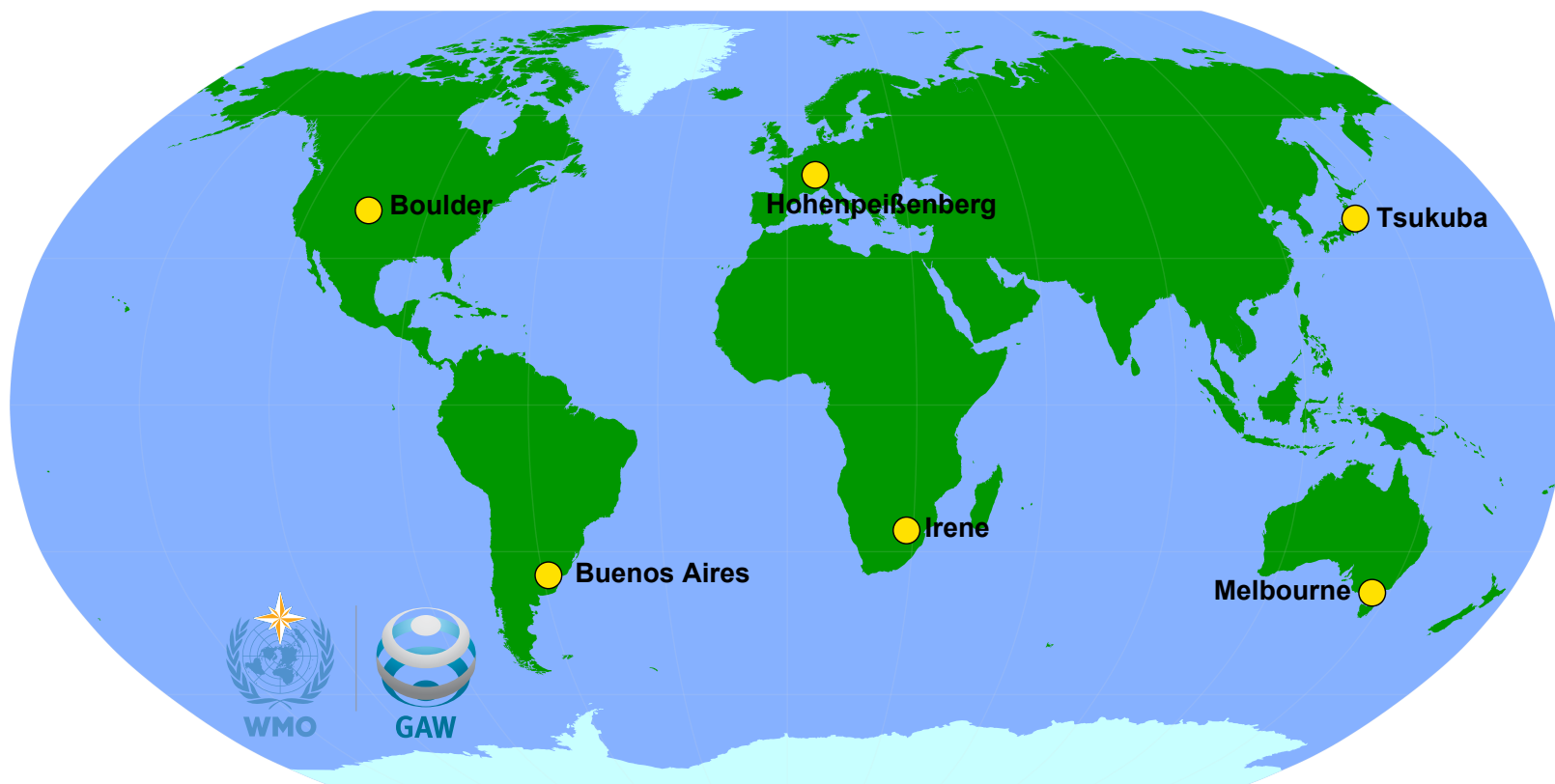




Dobson intercomparisons are organised by Regional Dobson Calibration Centres

Dobson intercomparisons for Africa, Asia, Oceania and South America

- ✓ **Estimated cost approx. USD 50,000 + 50,000 + 30,000 + 50,000 = USD 180,000**
- ✓ **Dates: 2015 and 2016**





Brewer instrument training course

-  **At the 9th Meeting of the Ozone Research Managers the participants agreed on a recommendation that states the need for training courses on the operation of instruments and analysis of data**

-  **The Brewer User Group has proposed to arrange such a course in Thailand during 2015**
 - ✓ **Estimated cost is 40,000 USD. This activity can possibly be co-funded with the Canadian Brewer Trust Fund**

-  **Total need for funds during 2015-2016: 260,000 USD**
 - ✓ **Dobson relocations: 40,000 USD**
 - ✓ **Dobson intercomparisons: 180,000**
 - ✓ **Brewer training course: 40,000**



Needs for 2017 onwards in addition to maintenance of the existing network



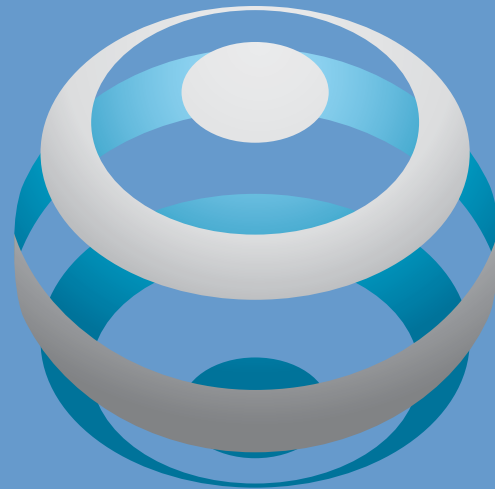
From the 9th ORM recommendations (rec. no 9 under Systematic Observations, page 38 in meeting report):

- ✓ **As technology and software have matured, new cost effective instruments are becoming available. Efforts should be made to evaluate such instruments for their suitability for deployment in the networks. Where possible, column measurements should be complemented by profile measurements.**
- ✓ **Two such instrument types are now available:**
 - **Mini-SAOZ, France (cost approx. 50,000 USD)**
 - **Pandora, USA (cost approx. 35,000 USD)**
 - **For comparison: A Brewer spectrophotometer costs approx. 250,000 USD**
- ✓ **Such instruments could be deployed in data sparse regions after being characterised and compared to Dobsons and Brewers. Brewer-Pandora intercomparison is under way in Toronto, and Switzerland is ready to do the same.**



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Thank you for your attention!



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