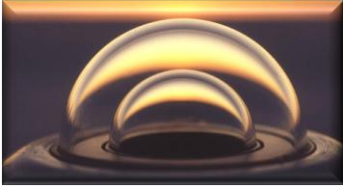


AWI-Beiträge zum GCOS



**World Radiation Monitoring Center (WRMC) des
Baseline Surface Radiation Networks (BSRN)**



Forschungsstation AWIPEV (Ny-Ålesund, Spitzbergen)



Forschungsstation Neumayer_III (Antarktis)

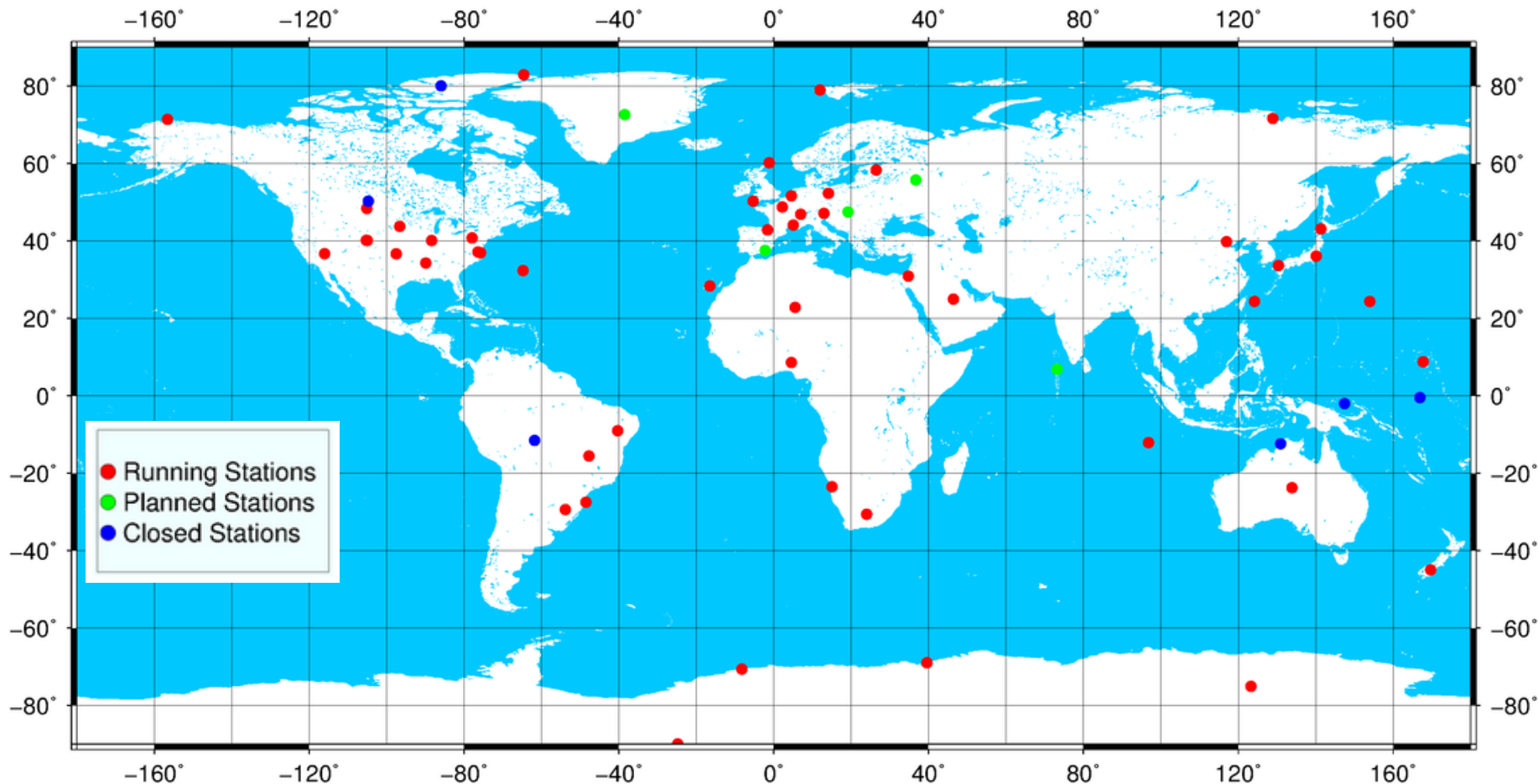


Forschungseisbrecher Polarstern



Present State of the WRMC:

58 stations provided data





Present State of the WRMC: 8391 station-months available

Station	Short name	Station manager currently in charge	pre BSRN	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	All	
Alert	ALE	David Halliwell (David.Halliwell@ec.gc.ca)																							X	
Alice Springs	ASP	Bruce Forgan (B.Forgan@bom.gov.au)					12	12	12	12	12	12	11	12	12	12	12	12							X	
Barrow	BAR	Ellsworth Dutton (Ellsworth.G.Dutton@noaa.gov)		12	12	12	12	12	12	12	12	12	12	12	12	12	12	12							X	
Bermuda	BER	Ellsworth Dutton (Ellsworth.G.Dutton@noaa.gov)		12	12	12	12	12	12	12	12	12	12	12	10											X
Billings	BIL	Charles Long (chuck.long@prl.gov)			4	12	12	12	12	12	12	12	11									7	12	4	X	
Bondville	BON	John Augustine (John.A.Augustine@noaa.gov)					12	12	12	12	12	12							12	6					X	
Boulder, SURFRAD	BOS	John Augustine (John.A.Augustine@noaa.gov)					5	12	12	12									12	12	6				X	
Boulder	BOU	Ellsworth Dutton (Ellsworth.G.Dutton@noaa.gov)		12	12	12	12	12									12	12	12	12	12	2			X	
Brasilia	BRB	Enio Bueno Pereira (eniobp@cptec.inpe.br)															8	10	4	9	12	12	5	X		
Cabauw	CAB	Wouter Knap (knap@knmi.nl)														11	12	12	12	12	12	12	4	X		
Camborne	CAM	Patrick Fishwick (patrick.fishwick@metoffice.com)										12	12	12	12	12	12	6							X	
Carpentras	CAR	Jean-Philippe Morel (jean-philippe.morel@meteo.fr)							12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5	X	
Chesapeake Light	CLH	Fred M. Denn (Frederick.M.Denn@nasa.gov)										8	12	11	12	12	12	12	12	12	12	12	6	X		
Serra																										
Solar Village	SOV	Naif Al-Abbad								3	12	12	12	12											X	
South Pole	SPO	Ellsworth Dutton		12	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2			X	
Syowa	SYO	Shigeaki Yoshida (shigeaki.yoshida@go.jp)				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11		X	
Sioux Falls		John Augustine (John.A.Augustine@noaa.gov)													7	12	12	12	12	12	6				X	
Tamanrasset		Abdelmimoun Dziri (abdelmimouni_dz@yahoo.fr)										10	12	12	12	12	12	12	12	12	12	12	12	4	X	
Taniguchi		Yoshinori Jimma (jimma@met.kishou.go.jp)						11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	4	X	
Tiksi		Vasilii Kustov (kustov@aari.ru)																			7	9			X	
Toravitsa		Ain Kallis (kallis@aai.ee)									12	12	12	12	12	12	12	12	12	12	12	12	5		X	
Xianghe	XIA	Xiangao Xia (xiangaoxia2000@yahoo.com)															12	12	12	8					X	
Historical station	Eismitte		1																						X	
	All			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
		pre BSRN		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	All	

~ 700 years of radiation measurements



BSRN in Web of Science (2015)

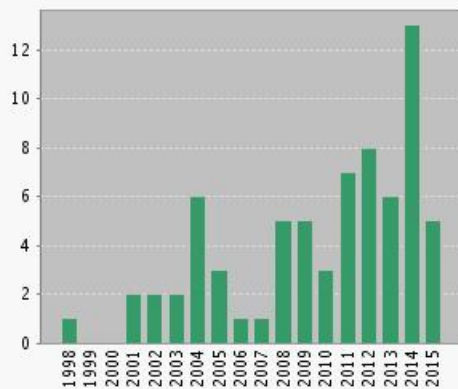
Citation Report: 70

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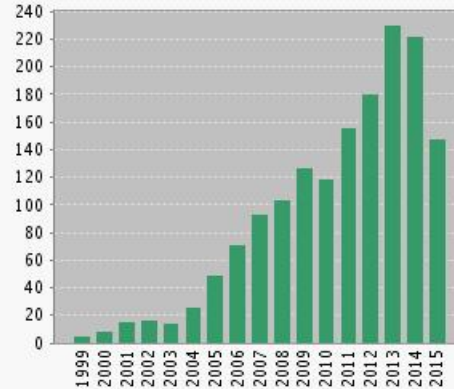
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GCOS Reference Upper-Air Network



Surface Air Temperature

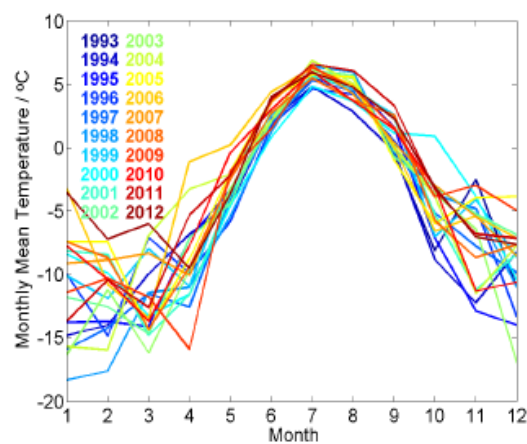


Fig. 5: Ny-Ålesund monthly mean surface air temperature, colour-coded for the different years of the observation period.

...and its Change over Time

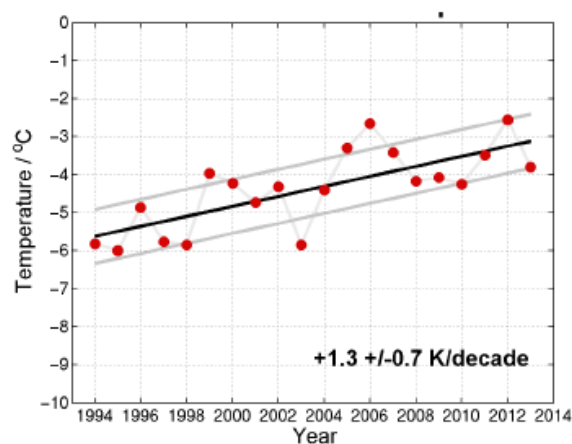


Fig. 6: Ny-Ålesund annual mean surface air temperature (*red dots*), with the linear regression (*black line*) $\pm 1 \delta$ (*grey lines*) indicating an increase of $+ 1.3 \pm 0.7$ K per decade.

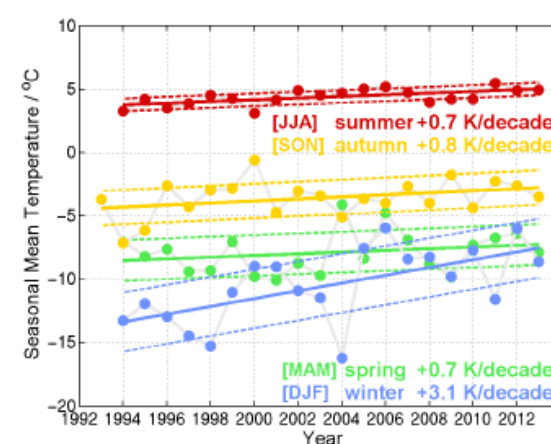
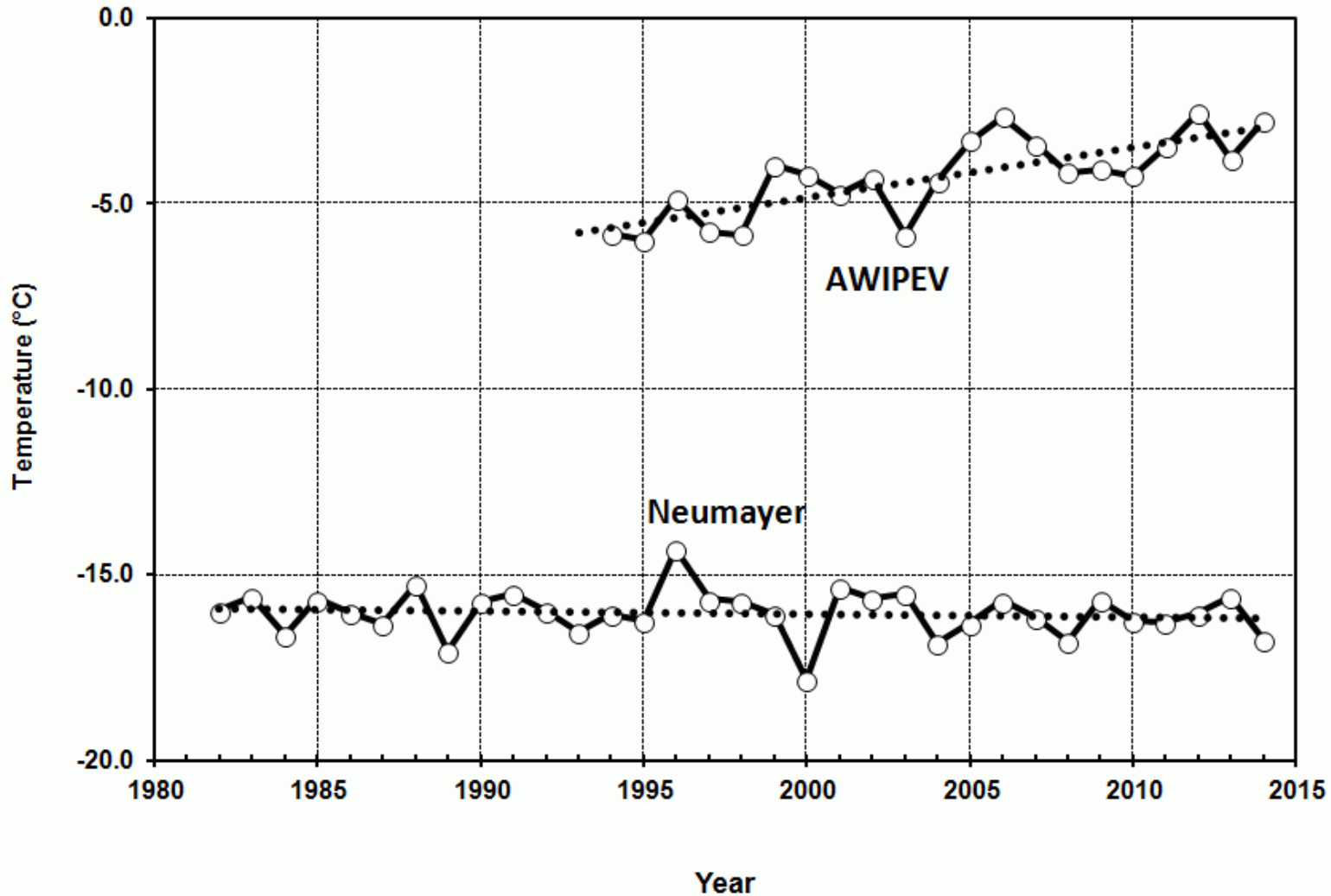
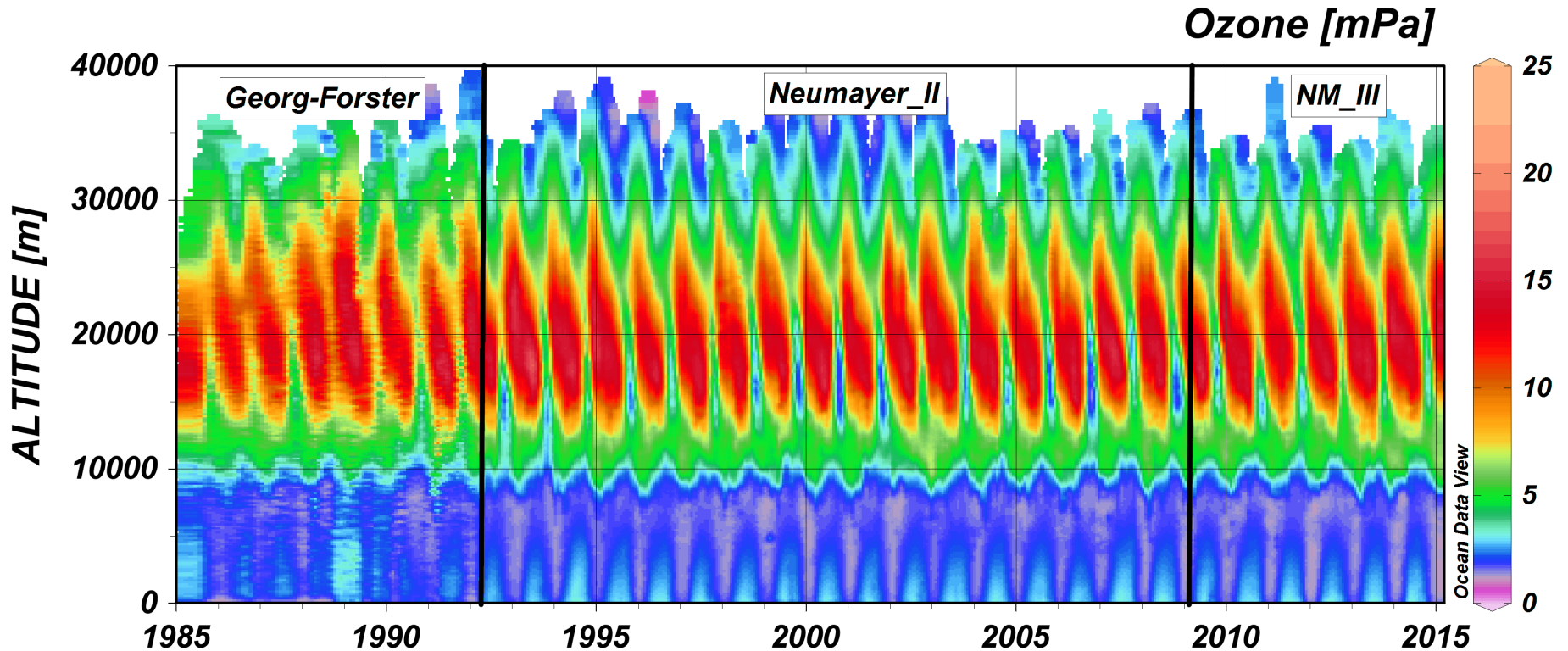


Fig. 7: As Fig.5 , but for the seasonal mean temperature spring (Mar-Apr-May, *green*), summer (Jun-Jul-Aug, *red*), autumn (Sep-Oct-Nov, *yellow*), and winter (Dec-Jan-Feb, *blue*).

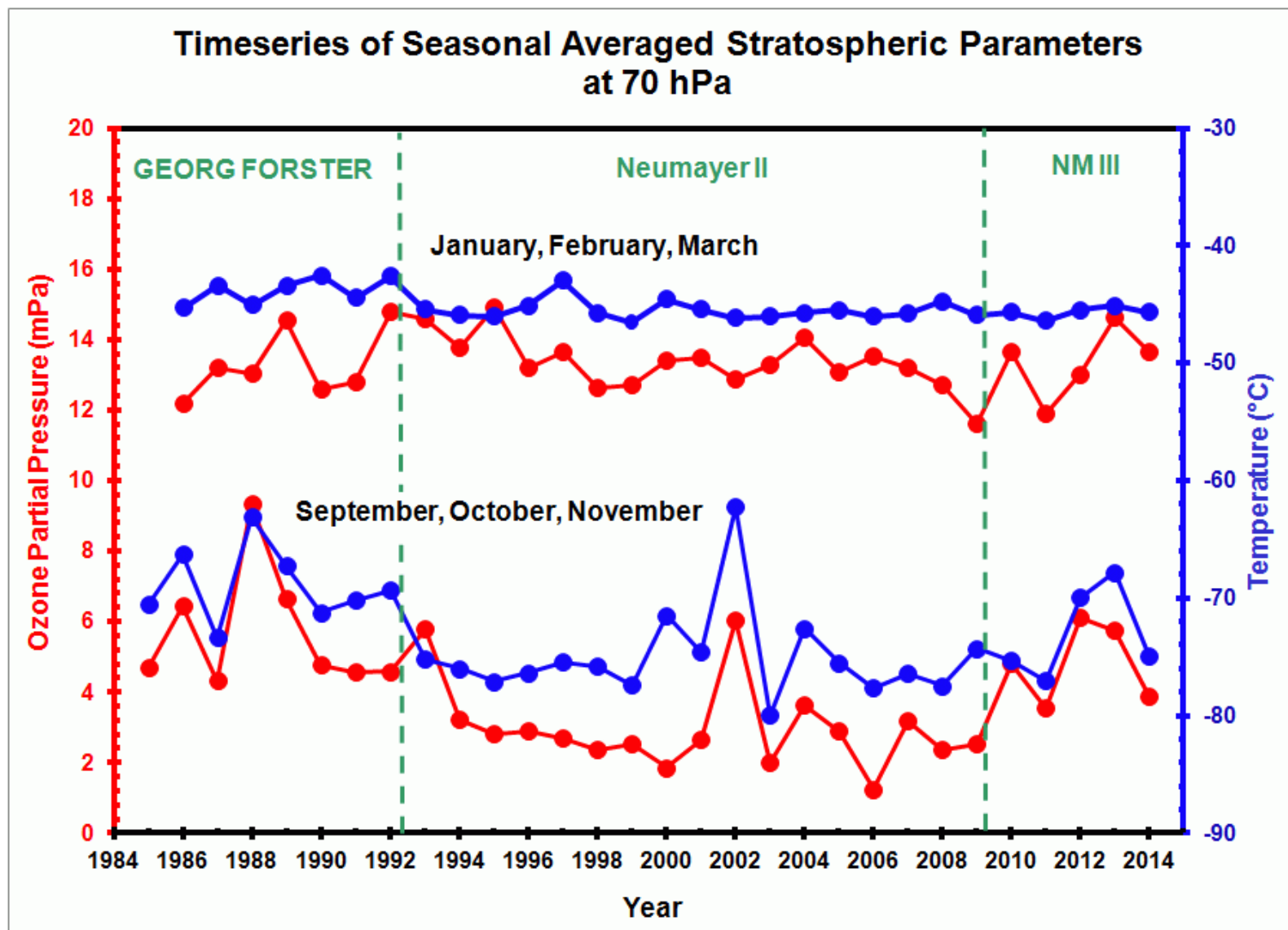
Yearly Averaged Air Temperature at Neumayer and AWIPEV



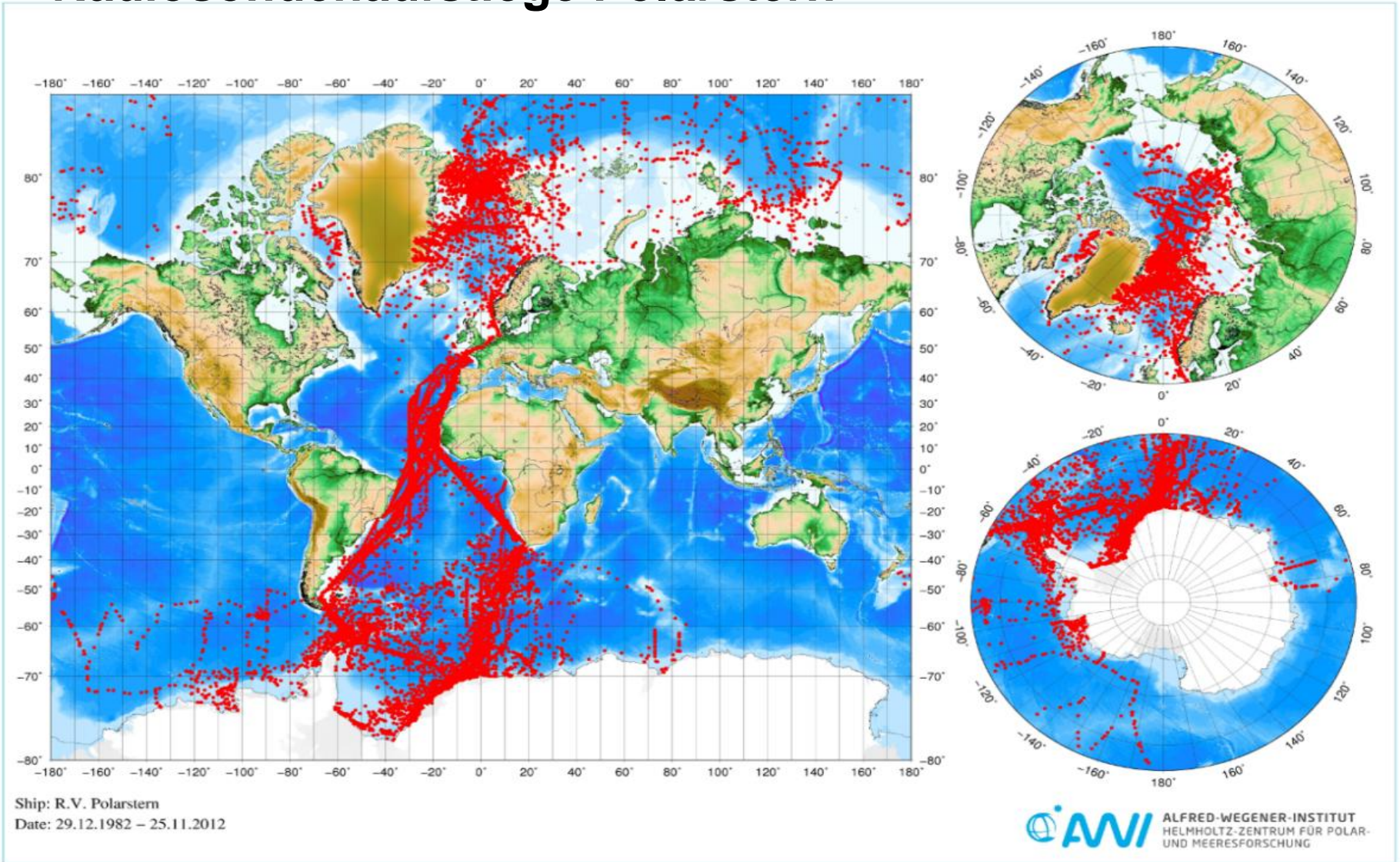
30 Jahre Ozonaufstiege Forster/Neumayer

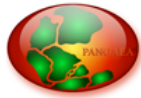


30 Jahre Ozonaufstiege Forster/Neumayer



30 Jahre Radiosondenaufstiege Polarstern





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Data Description

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Citation: **König-Langlo, Gert (1994):** Upper air soundings during POLARSTERN cruise ARK-IX/4. *Alfred Wegener Institute, Helmholtz Center for Polar and Marine Research, Bremerhaven, Dataset #851354 (DOI registration in progress)*

Related to: **Fütterer, Dieter K (1994):** Die Expedition ARCTIC 93, der Fahrtabschnitt ARK-IX/4 mit FS Polarstern 1993 (The Expedition ARCTIC 93 Leg ARK-IX/4 of RV Polarstern 1993). *Berichte zur Polarforschung = Reports on Polar Research*, **149**, 244 pp, doi:10.2312/BzP_0149_1994

Project(s): **Meteorological Long-Term Observations @ AWI** (AWI_Meteo)

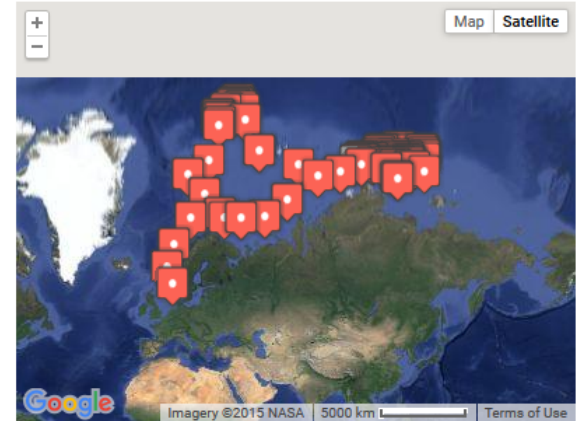
Coverage: *Median Latitude: 77.418750 * Median Longitude: 83.451250 * South-bound Latitude: 55.100000 * West-bound Longitude: 4.500000 * North-bound Latitude: 82.800000 * East-bound Longitude: 133.600000*

*Date/Time Start: 1993-08-08T10:31:00 * Date/Time End: 1993-10-05T04:37:00*

Comment: The upper air soundings are normally performed once a day to measure vertical profiles of air pressure, temperature, relative humidity and the wind vector. Helium filled balloons (TOTEX 600 g, 800 g) were used to carry Vaisala RS80 radiosondes. Whenever possible, the launches were performed about 10 UTC. Condensed measurements (TEMP Format FM-35) were transferred without delay into the Global Telecommunication System GTS where they contribute for the world wide weather forecasts. The profile data were taken every 5-10 seconds which result in a vertical profile resolution of about 25-50 meter. The profiles start at the helideck 10 m above sea level and terminate at the burst level of the balloons, normally at heights between 25 and 37 km.

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2. **König-Langlo, G (1994):** Radiosonde PS27/10361 during POLARSTERN cruise ARK-IX/4 on 1993-08-09 10:30h. doi:10.1594/PANGAEA.381890
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5. **König-Langlo, G (1994):** Radiosonde PS27/10364 during POLARSTERN cruise ARK-IX/4 on 1993-08-12 04:35h. doi:10.1594/PANGAEA.381893
6. **König-Langlo, G (1994):** Radiosonde PS27/10365 during POLARSTERN cruise ARK-IX/4 on 1993-08-12 10:40h. doi:10.1594/PANGAEA.381894
7. **König-Langlo, G (1994):** Radiosonde PS27/10366 during POLARSTERN cruise ARK-IX/4 on 1993-08-13 04:33h. doi:10.1594/PANGAEA.381895