

IRENE

SANOX – Measurements and Activities

**Adapted by Anne Thompson from
Presentation of 2 June 2011**

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and Prof. V Sivakumar (CSIR Pretoria)

C4-SAR Workshop, Eskom Conference Center, 2June 2011, South Africa

Our GAW Cape Point Connection

GAW Regional Systematic Monitoring and Research Program

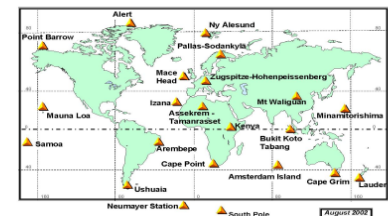
- Global Observing System (GO3OS) sites: 1) Total Dobson Column Ozone (#089 Irene since 1989, with 1964-1970 data, 2) #132 Springbok since 1995 and 3) Dobson #35 Cape Point 2011 ?),

EEC GPS Ozone Balloon Sondes (Irene) since 1990 every week or two weeks. (joined SHADOZ in 1998)

- Baseline Surface Radiation Network (BSRN) Station: Solar Radiation (De Aar), site for GARP (POPs & VOC)
- National UVB Network (Cape Town, Cape Point, Port Elizabeth, De Aar, Durban, Pretoria)
- Cape Point GAW Station:** Global Station, Trace Gases, CO, CO₂, NH₄, HCFCs, Be, Aerosol, Rn, Hg, SO₂, VOCs, Meteo., Solar, AOD, UVA, UVB



GAW GLOBAL MONITORING STATIONS:
COMPREHENSIVE MEASUREMENTS LONG TERM
However: The GAW Network is Much Bigger When Regional Stations Are Included (next slides for examples)

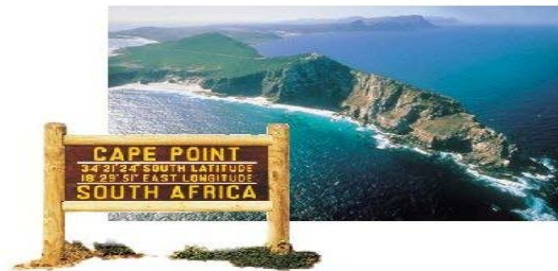


South African Weather Service (2002) An agency of the Government Department – Environmental Affairs

- Staff 350 persons
- Scientific staff 50% (Weather Observers and Scientists)
- Budget 20 000 000 US\$ per annum (65% Grant from Government)

Research Department of SAWS (25 scientists) , Climate Services, Regional Observation database

- Numerical Weather Prediction
- Long-term Weather Forecasting Centre
- Observation Research (in the past - weather modification)
- Short term Forecasting/Now casting - Severe Weather (Radar, Satellite...etc.)
- Climate and Environmental Monitoring
 - Climate Change, Air Quality Forecasting and Monitoring,
 - **GAW** - Includes the Cape Point GAW station (5 persons) and Regional (2 persons) with focus on Ozone, UV and Solar



IRENE STATION & SANOX - Measurements

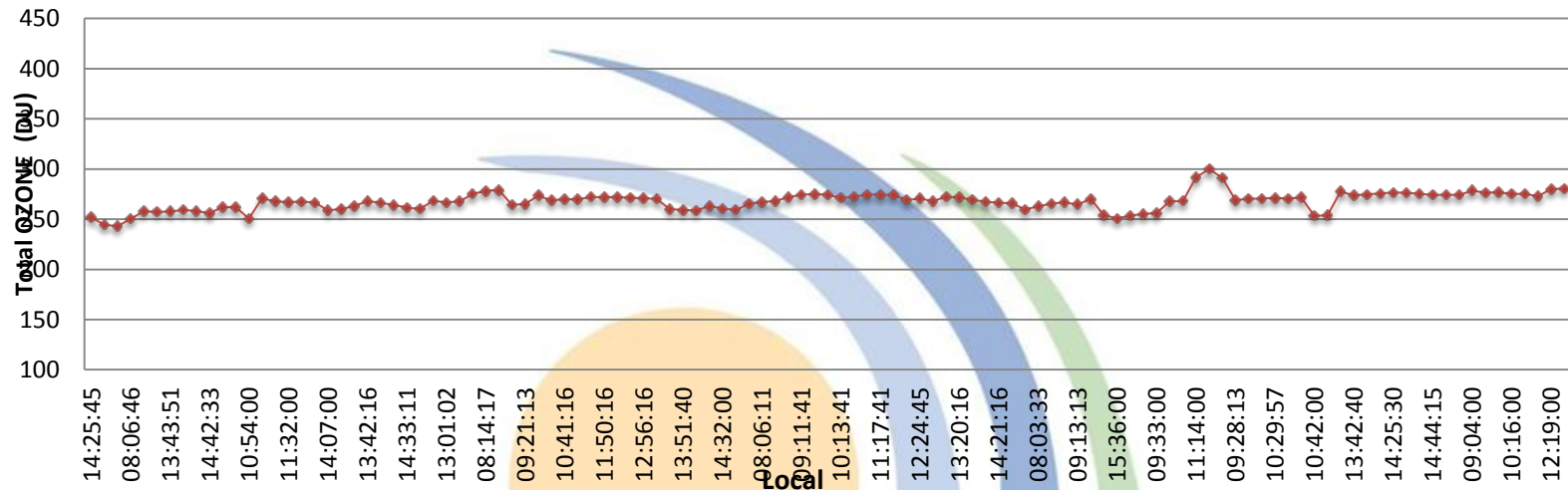
IRENE MEASUREMENTS / EXPERIMENT 23 - 27 May 2011. Measurements:-

- Ozone soundings a few per day.
- Dobson and Micro-Tops Ozone
- UVB – Biometer
- TECO - surface ozone analyser
- CSIR Mobile Lidar (Aerosols, NO₂, etc.) and Sun Photometer - **From CSIR (not SAWS)**
- Pandora Spectrophotometer
- Additional NO_x instruments and Satellite Data (**Loaner from Penn State; NASA interested in putting one in SA**)
- Daily/hourly Meteorological Observations
- Lightning data – if occur



SANOX – DOBSON DATA

Irene , 23- 27 May 2011, Dobson Total Ozone Column



C:\dobson\dobson.exe

Station : Irene Oct2009, ZA Dobson No.: 89

Data Print Graph Initialization Sun : ZA = 63.73 MU = 2.228

Day	Flag	No	Type	Time	Mu	M	XAD	XCD	XC	XCC'
1	[*]	434	DS	8:37	2.686	2.729	227.6	0.0	0.0	0.0
16	[*]	435	DS	8:38	2.666	2.708	229.2	0.0	0.0	0.0
17	[*]	436	DS	8:39	2.633	2.673	232.0	0.0	0.0	0.0
18	[*]	437	DS	9:31	1.965	1.979	252.2	0.0	0.0	0.0
19	[*]	438	DS	9:32	1.956	1.970	254.2	0.0	0.0	0.0
20	[*]	439	DS	9:33	1.948	1.962	255.0	0.0	0.0	0.0
21	[*]	440	DS	10:11	1.701	1.709	266.5	0.0	0.0	0.0
22	[*]	441	DS	10:12	1.696	1.704	266.9	0.0	0.0	0.0
23	[*]	442	DS	11:14	1.499	1.504	290.3	0.0	0.0	0.0
24	[*]	443	DS	11:15	1.497	1.502	298.5	0.0	0.0	0.0

Date: MAY 25, 2011

	AUG	STD	RA	NA	dNA
AD	260.2	25.0	181.7	159.2	-2.0
CD	0.0	0.0	0.0	0.0	-1.8
CC'	0.0	0.0	0.0	0.0	-1.6

Clouds: Cloud cover: 3ac Visibility: 30.0 km

Wavelength: <> AD <> CD <> CC'

Ok Cancel Erase

F1 Help F10 Menu Alt-X Exit Date: 06/01/2011 Time [ST]: 09:11:30 366424

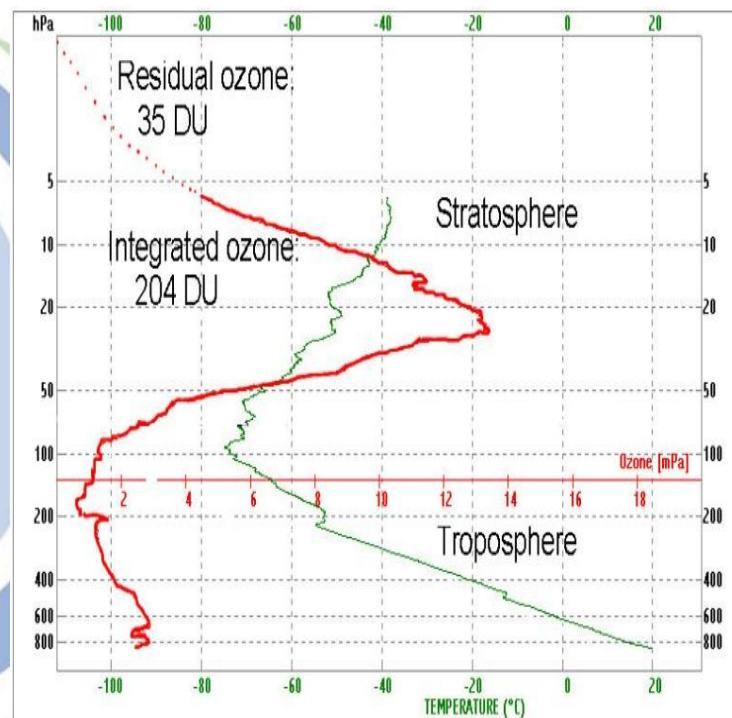
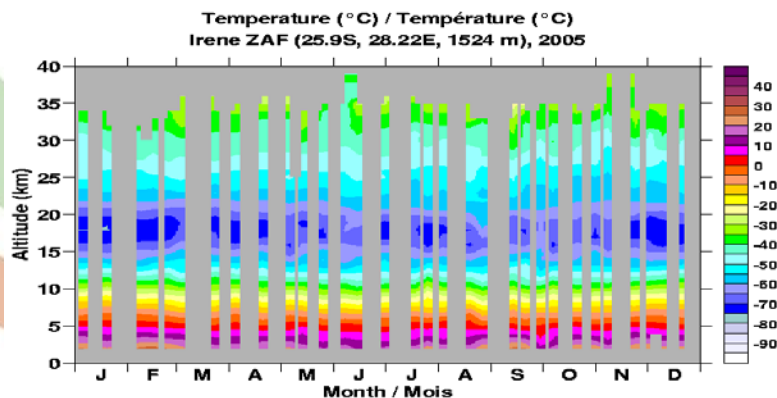
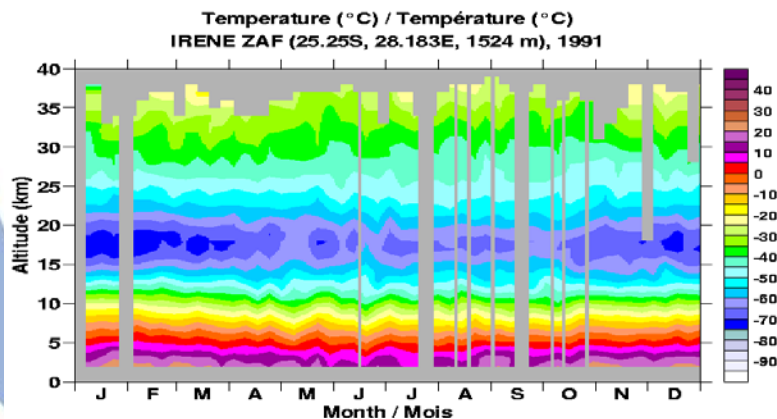
Irene Ozone Soundings

Ozone soundings – weekly and 2-weekly

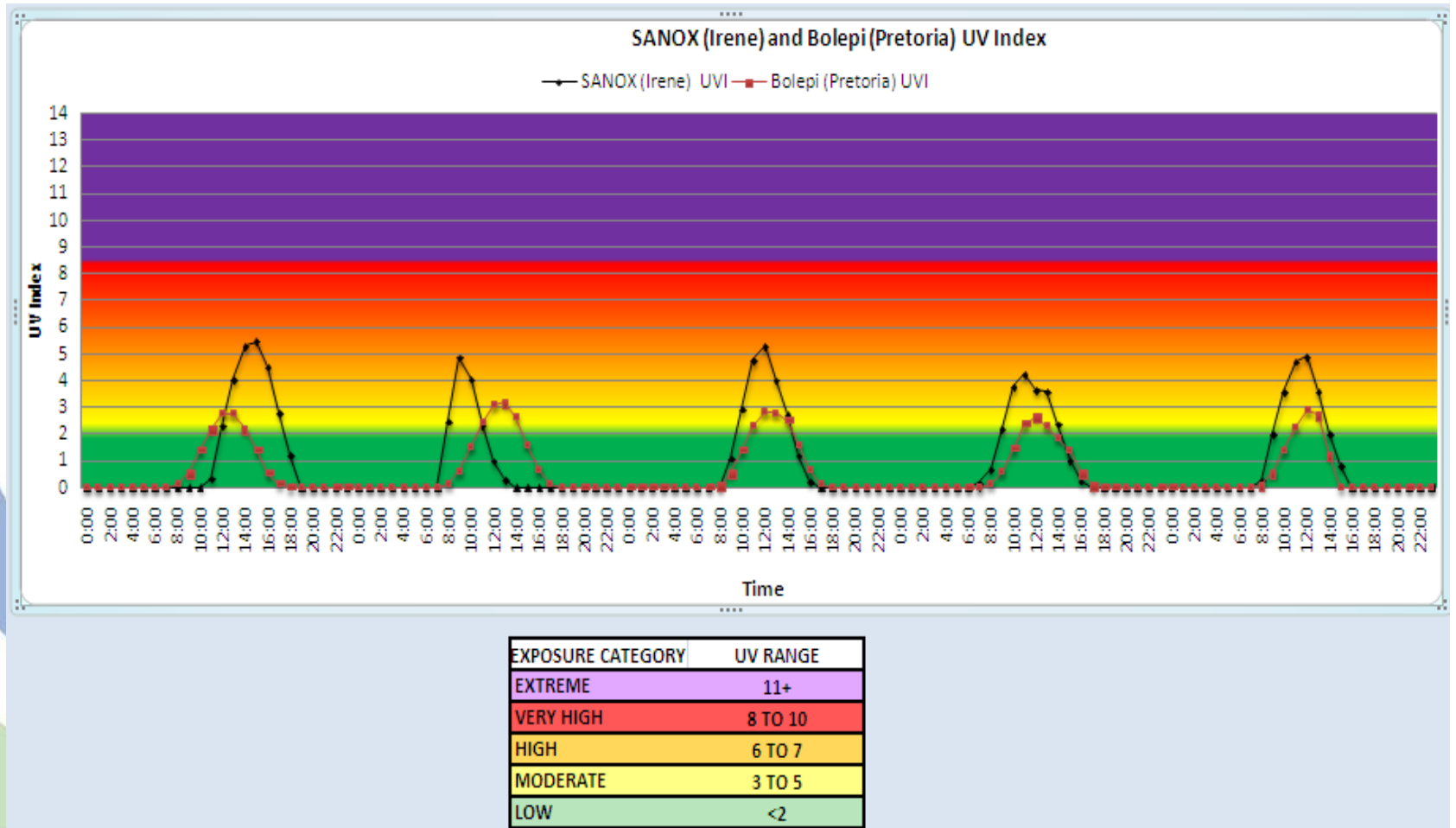
Vaisala - ECC RS80, RS 92 GPS

1990 – 1994 and then we purchased the new D132 @ 40 000 UK Pounds

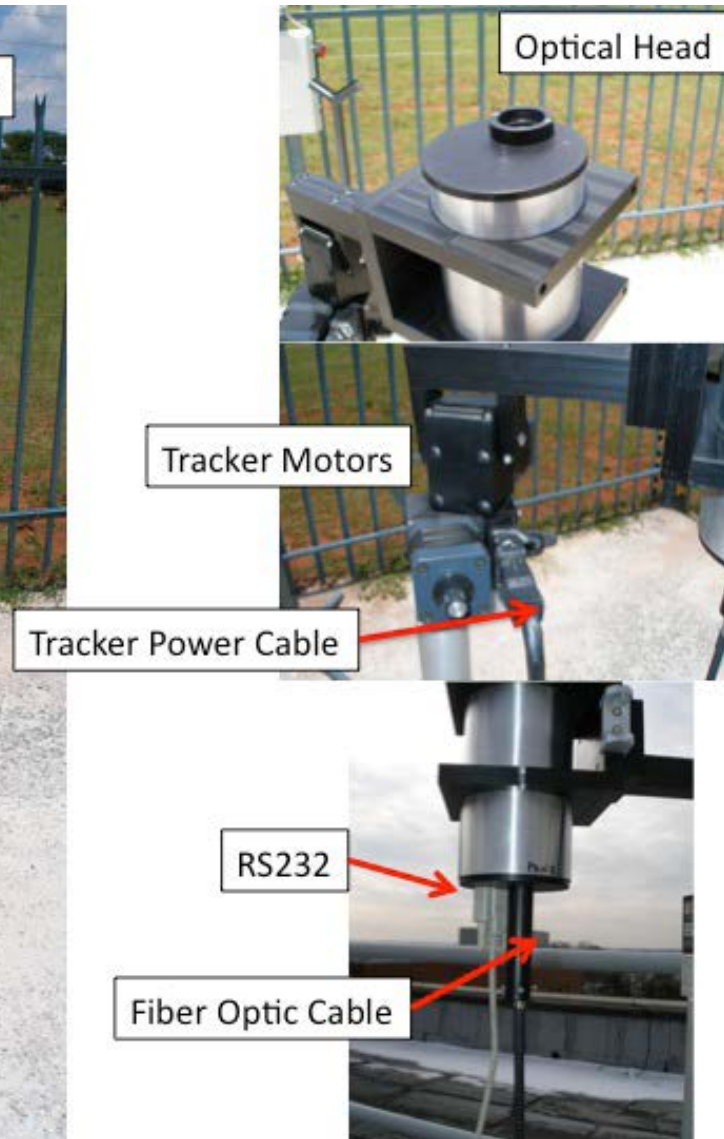
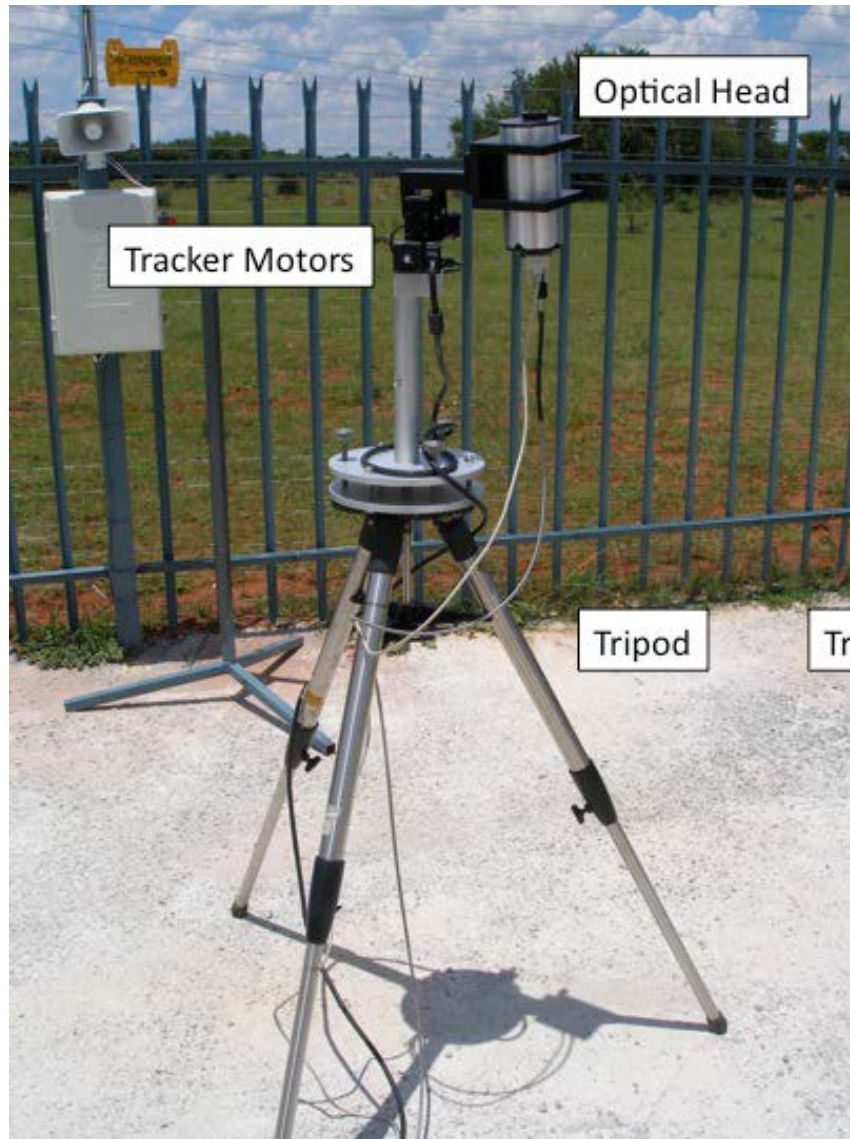
1997 - 2008 and now restart from 2011



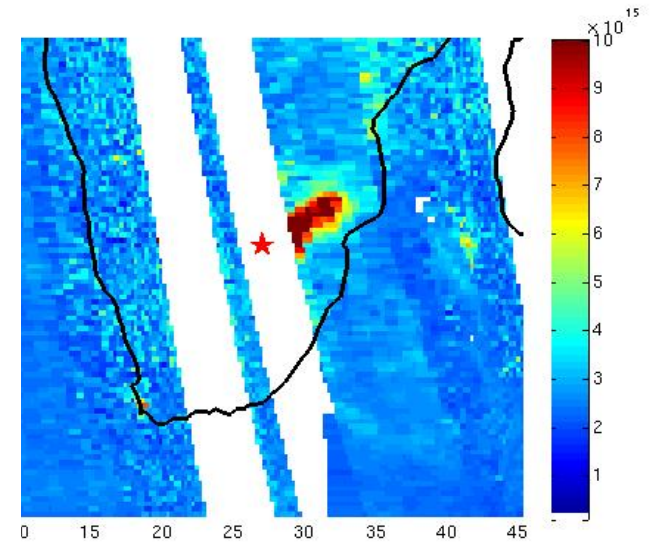
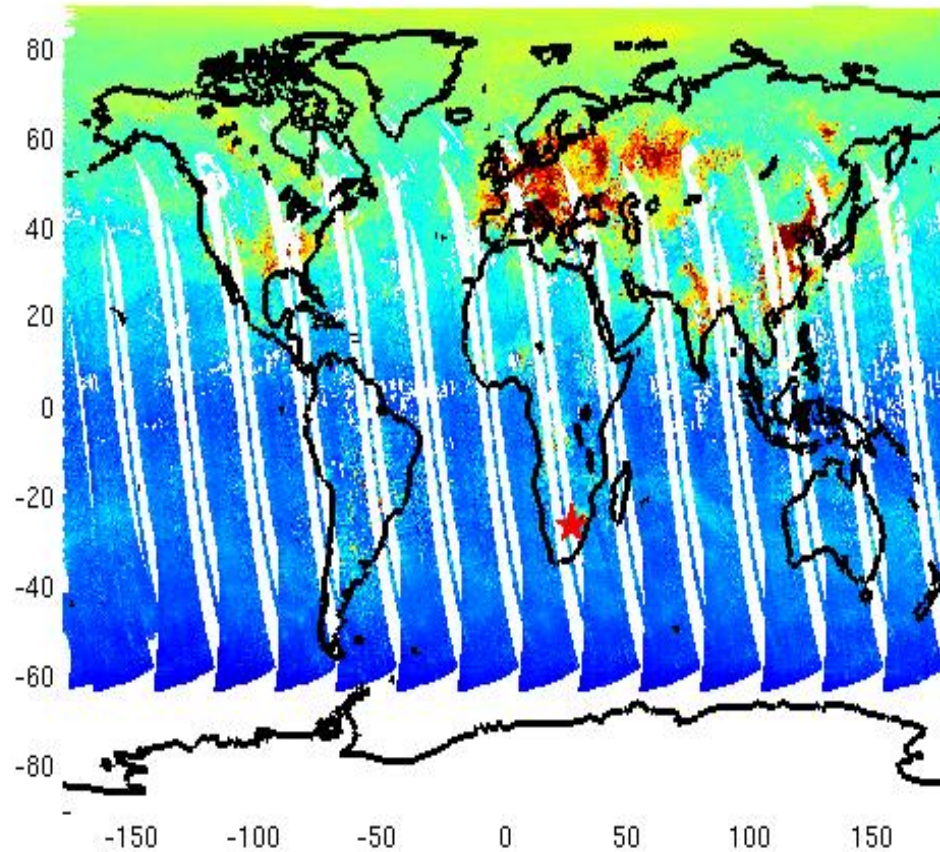
SANOX – UV Biometer data



The Pandora Spectrometer



OMNI data for SANOX (NO_2)



SANOX – Daily Preparations

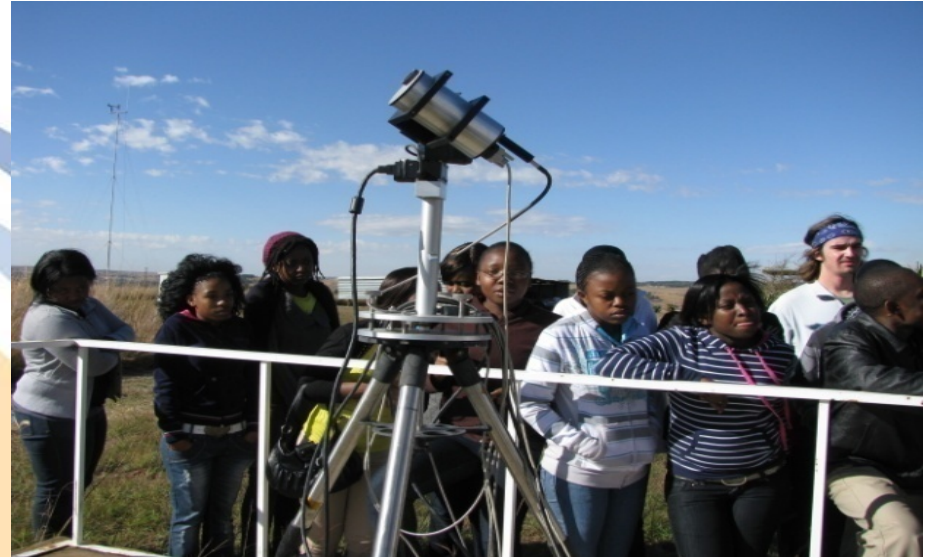


Conditioning ozone sondes takes a lot of time and dedication . Clinical procedures as prescribed by SOP. 2 Hours preparations and 2 hours in flight. Not a job for sissies.

SANOX – Student Exposure

Prof. Siva (CSIR) and his 30 UP University students visiting Irene during SANOX

Excellent ... Siva ... Excellent !!!



SANOX – Anne's Pictures

This is all she did during the week while we slaved away !

Fires and more Fires....



National reports received



2010 – New Dobson #56 at Kampala, Uganda
(*University Oslo, Norway (UO)*)
Maintaining Dobson IC and workshops.

Dobson stations in Nigeria, Botswana and Seychelles
High precision UV measurements (ground based) a great
concern across the continent

