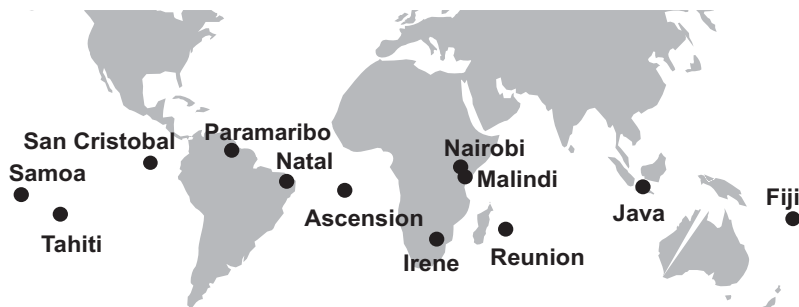




Southern Hemisphere Additional OZonesondes:  
A Data Set for Remote Sensing Research,  
Global Models, and Education.

## SHADOZ Notes

Data is available to the scientific community at the following website:  
[http://code916.gsfc.nasa.gov/Data\\_services/shadoz](http://code916.gsfc.nasa.gov/Data_services/shadoz)



### Data Archive Update

Data for year 2001 is complete for most stations. To date, since 1998, the SHADOZ archive has collect over 1500 sonde profiles from the eleven stations and three campaigns (SOWER, Aerosols99, and INDOEX - see website under "SHADOZ Campaign Data"). 2002 marks the fourth year anniversary of the SHADOZ project. Funding is renewed for another three years and it is expected that sonde data archiving from most of the current stations will continue. The website averages 500 unique hits per month with most of the hits coming from the education sector - an area of outreach which is one of the central goals of SHADOZ.

### JOSIE 2000

The Juelich Ozone Sonde Intercomparison Experiment (JOSIE) carried out sounding tests in an environmentally controlled chamber to be able to evaluate the performance of different in-situ ozonesonde instruments, i.e. Science Pump and EnSci, under differing solutions strengths, efficiency factors, and meteorological conditions. The experiments were done in September 2000 and were supported by the World Meteorological Organization (WMO) and hosted by the Forschungszentrum Juelich, Germany. Results of the experiment will provide insights into any station biases in the SHADOZ data. URL: <<http://www.fz-juelich.de/icg/icg2/forschung/Josie/>>

### Background

SHADOZ is a project to augment balloon-borne ozonesonde launches and archive data from eleven tropical and sub-tropical southern hemisphere operational sites. The project was initiated in 1998 by NASA/Goddard Space Flight Center with other US and international co-investigators.

SHADOZ was created to:

- ① Provide the first profile climatology of tropical ozone in the equatorial zone.
- ② Validate and improve satellite remote sensing techniques for estimating tropical ozone.
- ③ Supplement field project observations.
- ④ Provide research topics to scientists and educate students, especially in participating countries.

The data are *preliminary*: subject to revision and re-processing. Check dates of creation & download the most recent version of the data.

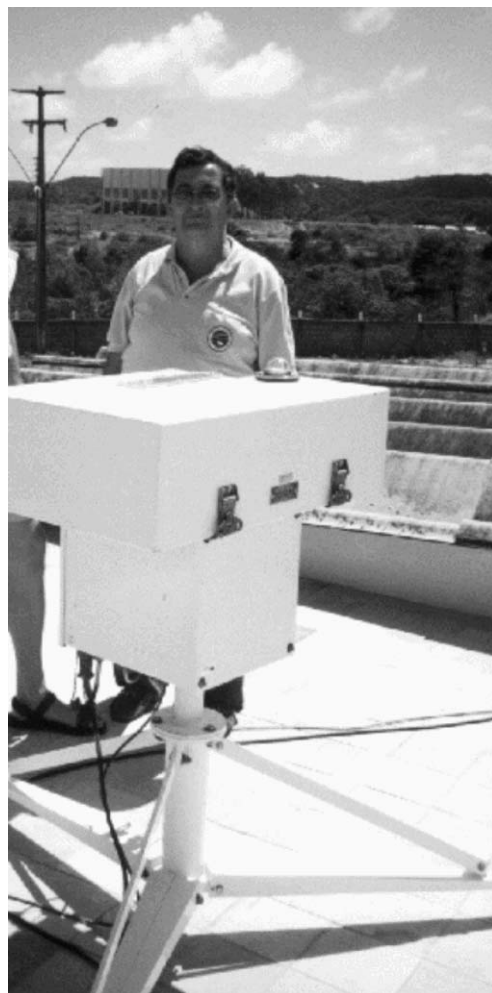
## ❧ *Spotlight 1: Malindi, Kenya Station* ❧

SHADOZ welcomes the San Marco equatorial site in Malindi, Kenya (3S, 40E). Archive data is available from March 2001. The station was established in 1999 through the sponsorship/partnership with the CRPSM (Centro Ricerche Progetto San Marco) department at the University of Rome 'La Sapienza', along with local Kenyan support staff who generally coordinates weekly sonde launches. The Principal Investigator for the station and the Co-investigator for SHADOZ is Giovanni Laneve and project manager is Francesco Longo. The station has an elevation just below sea-level (-6m) which is ideal for studying the retrieval of lower tropospheric ozone. Nairobi, Kenya (1S, 37E), situated approximately 300 km from Malindi (3S, 40E) has an elevation approximately 1.8 km above sea level and excludes the lowermost part of the troposphere. The Malindi site will offer a good ozone comparison with Nairobi profiles. For more information about the station refer to the SHADOZ Malindi site, or go to the San Marco station's official website: <<http://www.psm.uniroma1.it>>.

## ❧ *Spotlight 2: Natal, Brazil Station* ❧

Latitude	- 5S	Longitude	- 35W
Elevation[1]	- 42 m	[1]	- Inland site prior to December , 2001
Elevation[2]	- 14 m	[2]	- New Coastal site
Ozonesonde Type	- Mixture of EnSci Z and Science Pump 6A		
Radiosonde Type	- Sippican MK-2		
KI Solution	- 1% Buffered		

Established in 1978, the Natal, Brazil observatory (5S, 35W) is the oldest running ozone station in the tropics providing long term measurements of balloon-borne and ground-based ozone: both the Dobson (no. 219) and the Brewer total ozone instruments are housed here. The ozone program (Brazilian Cooperative Ozone Measurement Program) is currently headed by Dr. V. W. J. H. Kirchhoff at the Instituto Nacional de Pesquisas Espaciais (INPE). Launches are coordinated weekly by station chief Francisco Raimundo da Silva and staff using ECC ozonesondes since mid-1995. In December 2001, the ozone lab relocated the station closer to the coast (Maxaranguape). The original site was located further inland and under increasing urban influences. The move was necessary in order to maintain background, unpolluted air samples. To learn more about the INPE Ozone Lab. and their other research activities visit their website: <<http://www.ozonio.crn.inpe.br/principali.htm>>.



Station manager Francisco Da Silva in front of the Natal Brewer spectrophotometer housed on the roof of a nearby shelter.

## ➤ SHADOZ Reference & Citation Information ◀

When publishing data from the SHADOZ archive, please cite:

The 1998-2000 SHADOZ (Southern Hemisphere Additional OZonesondes) Tropical Ozone Climatology. 1. Comparison with TOMS and Ground-based Measurements, A. M. Thompson, J. C. Witte, R. D. McPeters, S. J. Oltmans, F. J. Schmidlin, J. A. Logan, M. Fujiwara, V. W. J. H. Kirchhoff, F. Posny, G. J. R. Coetzee, B. Hoegger, S. Kawakami, T. Ogawa, B. J. Johnson, H. Voemel, and G. Labow, *Journal of Geophysical Research - Atmospheres*, in press, 2002.

## ➤ Additional SHADOZ Reference ◀

Note that a second SHADOZ manuscript has been submitted since 02/2002:

The 1998-2000 SHADOZ (Southern Hemisphere Additional OZonesondes) Tropical Ozone Climatology. 2. Stratospheric and Tropospheric Ozone Variability and the Zonal Wave-One, A. M. Thompson, J. C. Witte, S. J. Oltmans, F. J. Schmidlin, J. A. Logan, M. Fujiwara, V. W. J. H. Kirchhoff, F. Posny, G. J. R. Coetzee, B. Hoegger, S. Kawakami, T. Ogawa, *Journal of Geophysical Research - Atmospheres*, submitted, 2002.

## ➤ Attention Data Users ◀

The SHADOZ homepage also gives technical information for each station, and addresses of the Co-Investigators. The Co-I's are responsible for the original data processing and should be consulted for details of their methods and appropriate references to their work. Questions about the data should be directed to the datakeeper and webmaster: Jacquelyn Witte.

Questions about SHADOZ should be directed to the PI, Anne Thompson: [thompson@gator1.gsfc.nasa.gov](mailto:thompson@gator1.gsfc.nasa.gov). SHADOZ data sets are products of evolving research by the site Co-Investigators and ongoing community collaboration. As you work with the data, please keep us posted on issues that will help us improve the value of the data.

## SHADOZ Science Team

Anne Thompson - Principal Investigator  
 Gerrie Coetzee (SAWB, S. Africa)  
 Bruno Hoegger (Aero. Sta., Swit.)  
 Hennie Kelder (KNMI, Netherlands)  
 Volker Kirchhoff (INPE, Brazil)  
 Giovanni Laneve (Univ. Rome, Italy)  
 Richard McPeters (NASA/GSFC, US)  
 Toshihiro Ogawa (NASDA, Japan)  
 Samuel Oltmans (NOAA/CMDL, US)  
 Françoise Posny (Univ. Réunion, Fr.)  
 Francis Schmidlin (NASA/WFF, US)  
 Archiver/Webmaster: Jacquelyn Witte  
 (SSAI at NASA/GSFC)

SHADOZ Note is published for and about the data archive, tropical ozone research, remote sensing validation and education. SHADOZ is supported by NASA's ACPMAP Program and the TOMS project. Individual SHADOZ sites are also supported by in-country agencies and universities.

**Editor: Jacquelyn Witte.**  
**The newsletter welcomes contributions from the Co-investigators and all data users. Send items to:**

**Jacquelyn Witte**

**Fax : (301) 614-5903**

**Email : [witte@gavial.gsfc.nasa.gov](mailto:witte@gavial.gsfc.nasa.gov)**



**For more information about SHADOZ or to access the data archive, visit our web site.**

## *Attention Reader*

If you would like to be added to our mailing list please send your name and address to: [witte@gavial.gsfc.nasa.gov](mailto:witte@gavial.gsfc.nasa.gov)