

# SPARC Data Center

[www.sparc.sunysb.edu](http://www.sparc.sunysb.edu)

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# SPARC Data Centre Overview

- Exists to facilitate data exchange between scientists participating in SPARC projects
- Operational since 1999
- Located at Stony Brook University, NY, USA
- Funded by NASA
- Currently holds a variety of observational, model and climatological data sets
- Accessed daily by users around the world

# System Information

- Located in School of Marine and Atmospheric Sciences at Stony Brook University, NY, USA
- Dell PowerEdge 2900
  - Dual 2.5GHz AMD quadcore processors
  - 16 GB memory
  - RAID 5 currently providing ~4 TB storage
  - LTO-3 tape drive for backup
  - UPS
  - 100 Mbps internet connection
- SuSE Linux Enterprise Server 10
  - Apache 2 http server
  - NcFTP ftp server

# System Information

- Upgrades and maintenance
  - Dell provides software upgrades and hardware support
  - Capacity to triple storage in present architecture
  - Potential increase in connection speed
  - Monitored from remote systems to report system failure.
  - Mirror provided by Kyoto University
    - <http://database.rish.kyoto-u.ac.jp/arch/sparc/>

# Funding

- Currently funded by NASA
  - The SPARC Data Center and QBO Impacts on Tropical Convective Systems
  - M. A. Geller principle investigator
  - P. T. Love - SPARC Data Center scientist
  - Sep 2007 – Aug 2010

# Policies

- SPARC research groups can request storage space on DC to support projects
- Data sent to DC for upload
  - Most digital media acceptable e.g. CD, DVD, tape
  - Alternatively by password protected ftp
  - Provide description of data format and notes relevant to project

# Policies

- Data can be made available by
  - Anonymous ftp
  - Restricted ftp
  - Mailed on digital media
- Data can be reformatted to common data formats e.g. NetCDF

# Current data holdings

- SPARC Reference Climatology Project
  - CIRA-86 - COSPAR International Reference Atmosphere
    - Temperature and wind
  - FUB - Free University Berlin Observations
    - Geopotential height and temperature
  - UKTOVS - UKMO TIROS Operational Vertical Sounder
    - Geopotential height, temperature, wind
  - URAP – UARS Reference Atmosphere Project
    - Temperature and wind
  - Bill Randel's Reference Climatologies
    - Various dynamic, thermodynamic and trace gas parameters derived from model reanalysis

# Current Data Holdings

- US High Resolution Radiosonde Data
  - 6 second resolution data from 93 US stations for 1998-2007
  - Transition to 1 second resolution
- GRIPS – GCM Reality Intercomparison Project
  - Gridded parameters from 14 models
- Stratospheric Aspects of Climate Forcing
  - Ozone, volcanic aerosol, solar irradiance
- WAVAS – Water Vapor Assessment
  - Various H<sub>2</sub>O observations (some restricted)

# Current Data Holdings

- Rocket Sonde Data
  - Various campaigns at 43 international stations
- Tropical Tropopause, Troposphere and Stratosphere Climatologies
  - Climatological statistics of 30 parameters relating to temperatures and mixing ratios derived from 83 stations between 30°N and 30°S
- ASAP – Assessment of Stratospheric Aerosol Properties
  - Report and data from SAGE
  - Links to further ASAP data

# Current Data Holdings

- Small Organic Peroxy Radicals
  - Tables and figures evaluating peroxy radical reactions
- Quantum yields for the production of  $O(^1D)$  in the ultraviolet photolysis of ozone
- SPARC IPY Data
  - Sign up form and link to University of Toronto

# System Usage

- Current data holdings using ~2% of capacity
- Usage for 20 months since hardware upgrade
  - 408 individual users downloaded data during 739 sessions (~ 330 GB)
  - Average of 37 download sessions per month
  - Relative usage
    - HRES, GRIPS, REF CLIM, NOAA TROP, ROCKET, WAVAS, CLIM FORCE

# Development

- Online plotting facility
  - Interactive user interface
  - Provide online graphical data display
  - Temporal/spatial subsetting depending on data set
  - Available for download in multiple formats
  - Data subset downloads
- Potential to work with project groups on developing website for specific needs