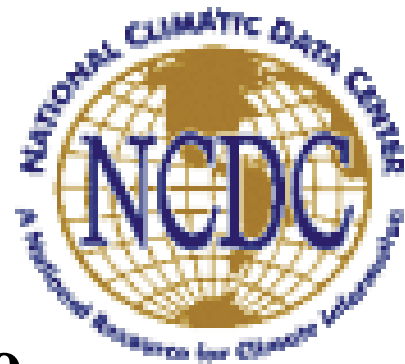




U.S. GCOS Activities



NOAA/GCOS Workshop to Define Climate Requirements for Upper Air Observations

**8-February-2005
Boulder, Colorado**

Howard J. Diamond



**NOAA/NCDC, Silver Spring, Maryland
U.S. National GCOS Program Manager**



Agenda



- **U.S. GCOS Program Office Background**
- **Global Support Activities**
- **Regional Support Activities**
- **Bilateral Support Activities**
- **NOAA Office of Climate Observations**
- **Contact Information**



Background of U.S. GCOS Program Office

- **NOAA Participation Since the Inception of GCOS in 1991**
- **NCDC Participation and Support of GCOS Science Panels**
- **U.S. GCOS Program Manager and National Focal Point Established by NOAA/NESDIS in November 1999; Coordination role to complement NCDC data activities**
- **Informal U.S. GCOS Coordination Group Established in January 2000 – Primary Goal Production of U.S. GCOS Report**
- **National U.S. GCOS Report Produced in August 2001**
- **Participation in a Wide-Range of Global, Regional, National, and NOAA Climate Observing Activities (e.g., WMO CCL, Pacific Island Region, U.S. Bi-Laterals, CCSPO/USGCRP, CCRI, PPBES, NOSC, etc.)**
- **U.S.GCOS Program Manager Transferred from NESDIS HQ to NCDC in December 2003 to Better Align w/Climate Activities**
- **Close Relationship with Office of Climate Observations at OGP (e.g., Mike Johnson and company)**

The United States Detailed National Report on Systematic Observations for Climate:
United States Global Climate Observing System
(U.S.-GCOS) Program

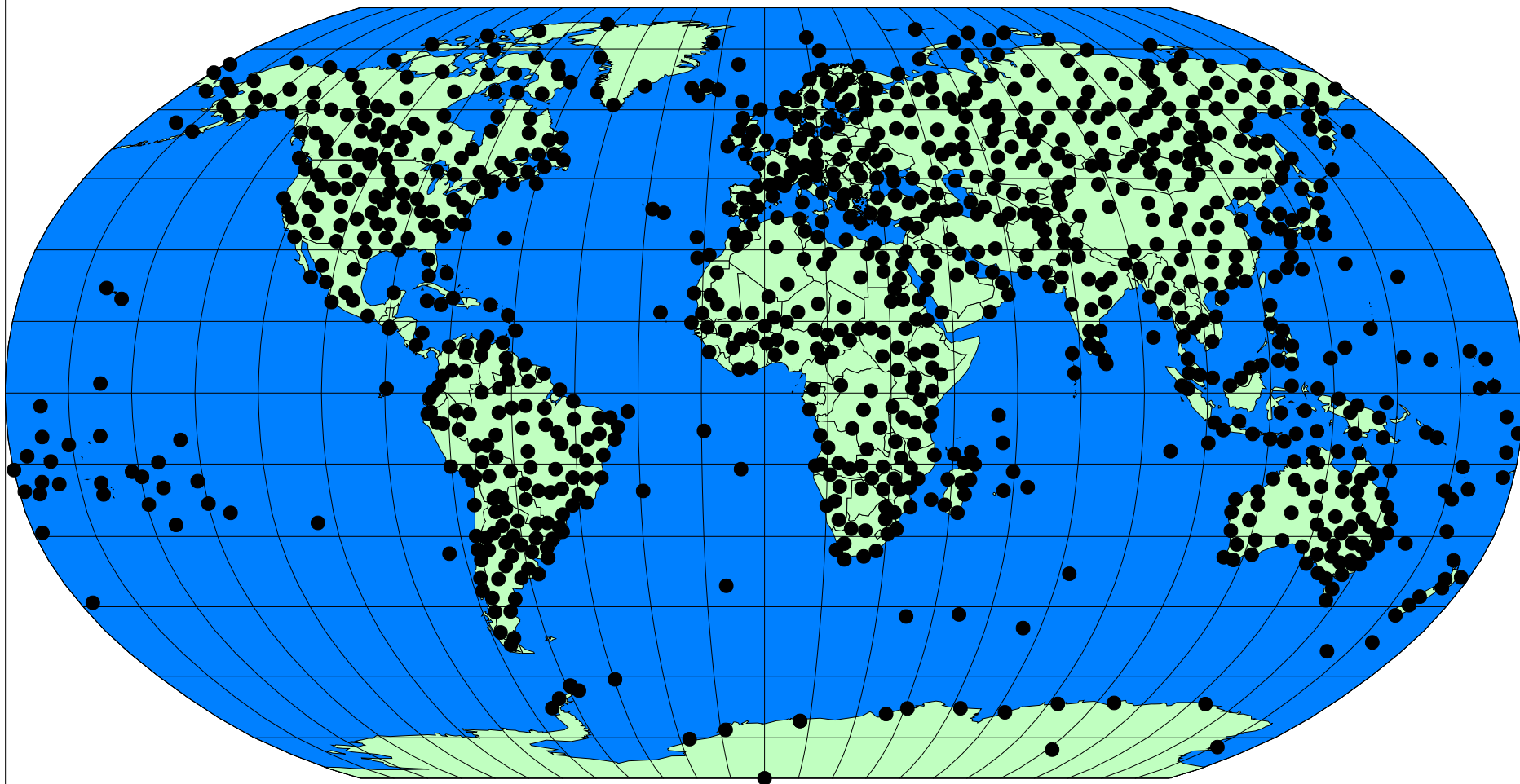


**Compiled on Behalf of the
United States Government by:
United States Department of Commerce
National Oceanic and Atmospheric Administration
National Environmental Satellite, Data, and Information Service
August 2001**

http://www.eis.noaa.gov/gcos/soc_long.pdf

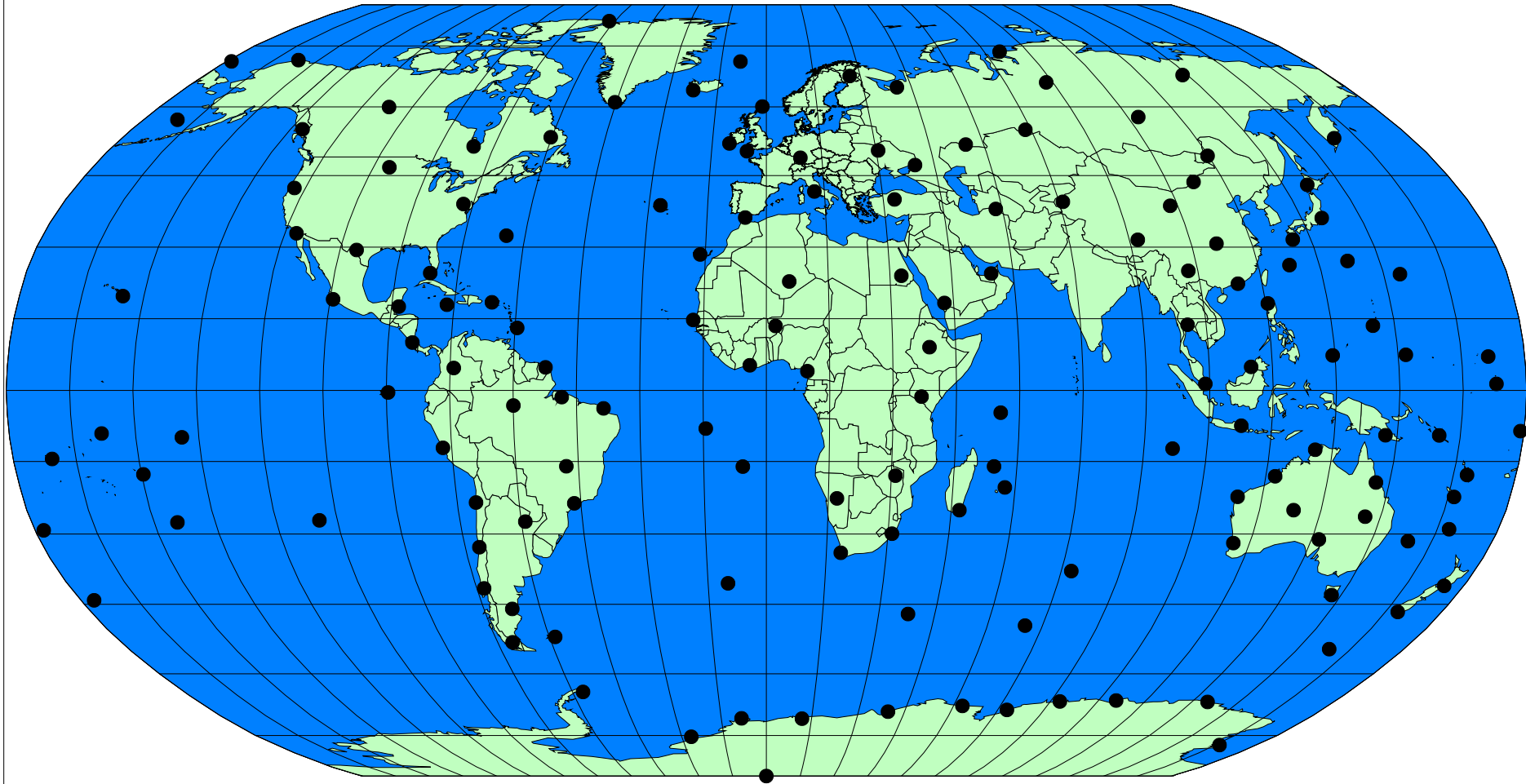
GCOS Surface Network (GSN)

981 Stations



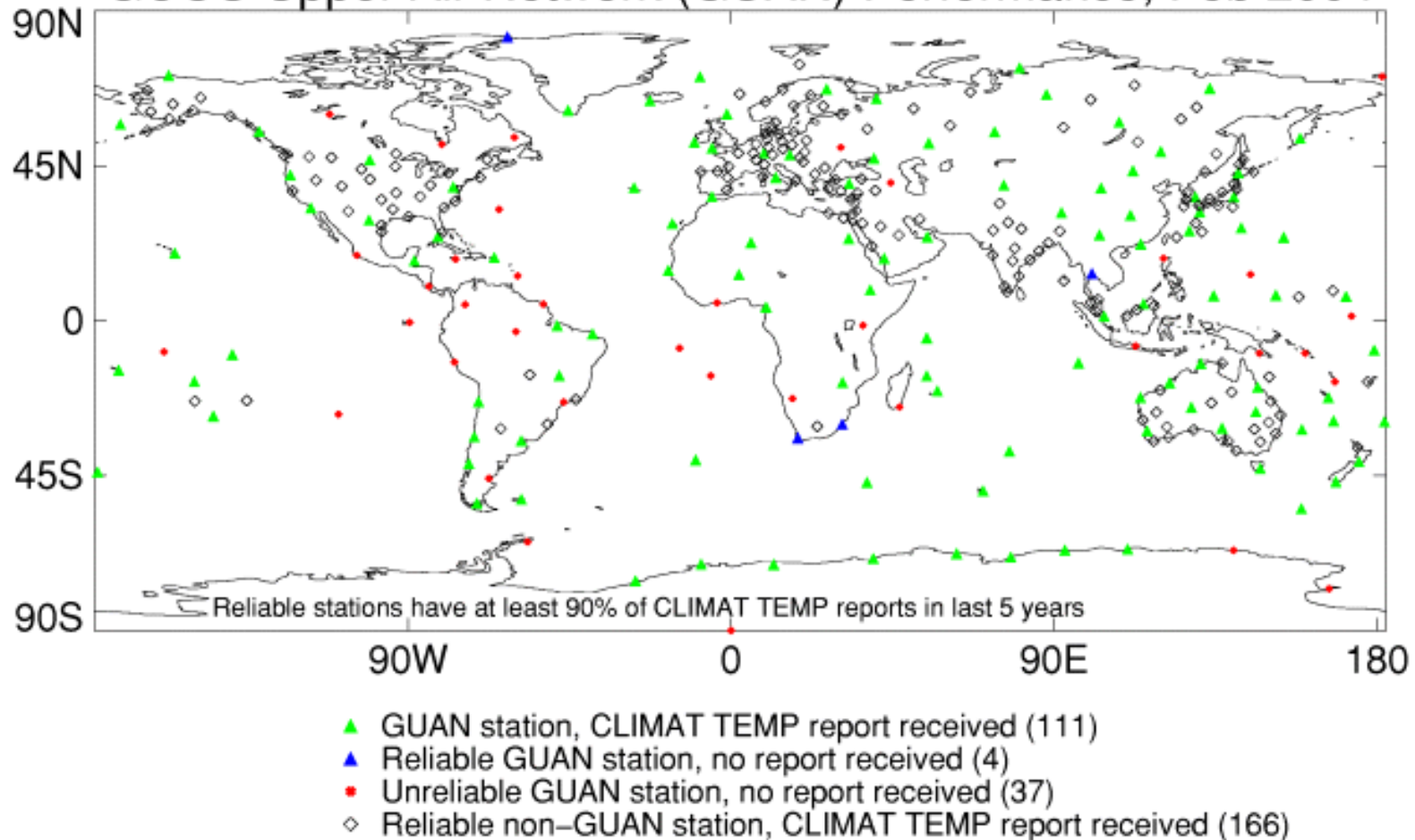
GCOS Upper Air Network (GUAN)

152 Stations



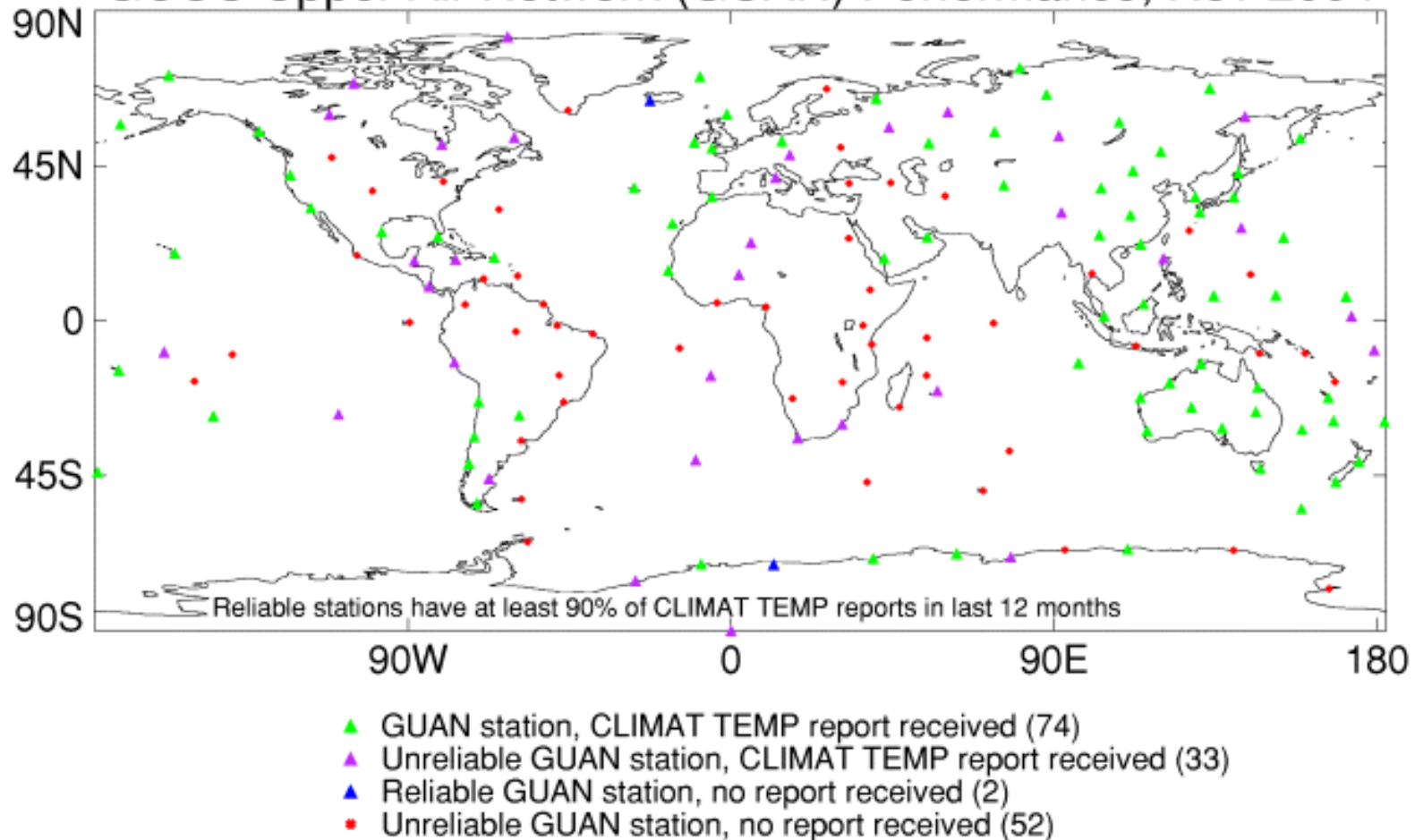
GUAN: Performance Monitoring

GCOS Upper Air Network (GUAN) Performance, Feb 2004



GUAN: Performance Monitoring

GCOS Upper Air Network (GUAN) Performance, Nov 2004



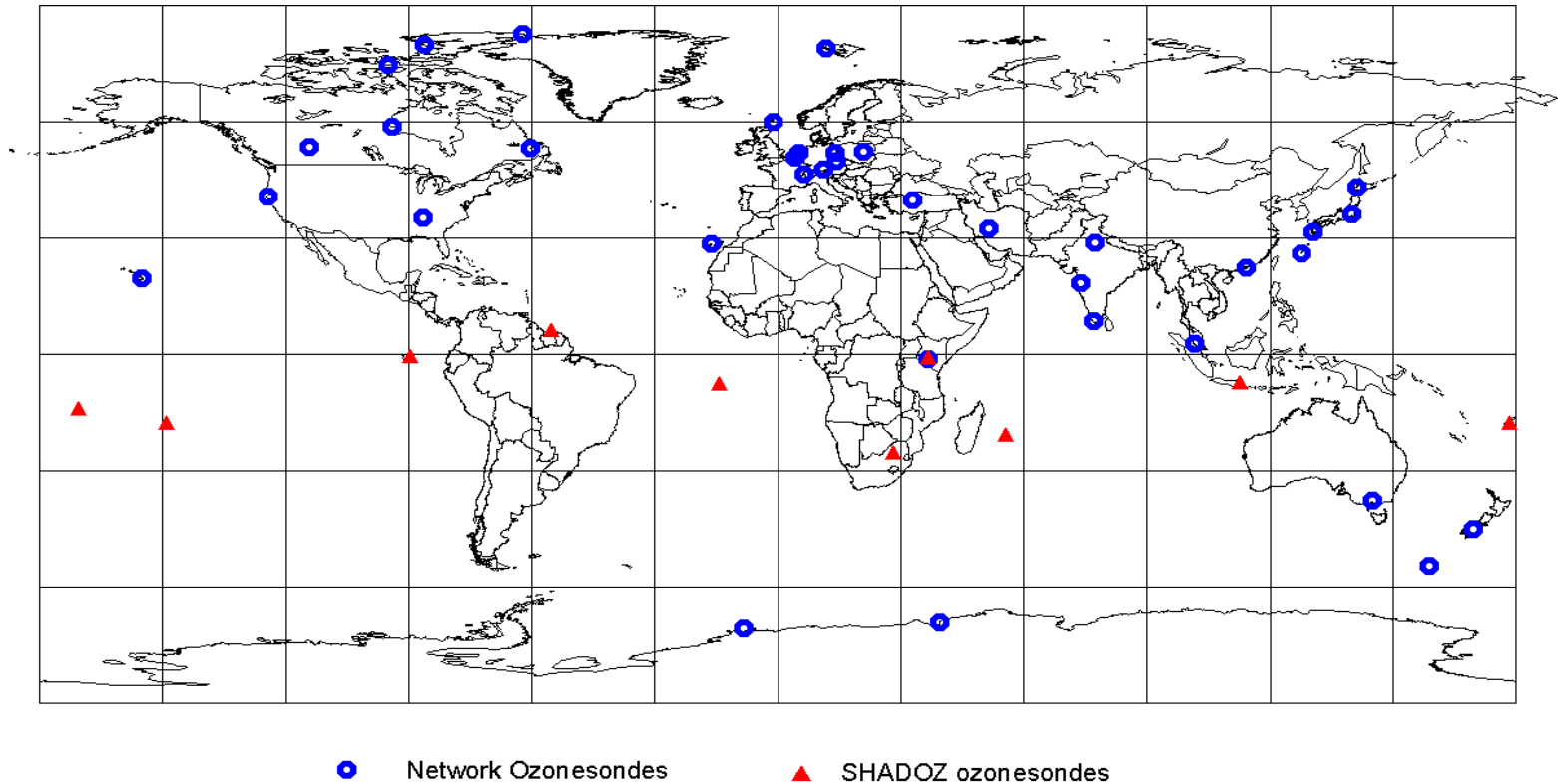
GAW GLOBAL MONITORING STATIONS: COMPREHENSIVE MEASUREMENTS LONG TERM

**However: The GAW Network is Much Bigger When Regional
Stations Are Included (next slides for examples)**



ESTIMATED GLOBAL OZONESONDE NETWORK: 2003

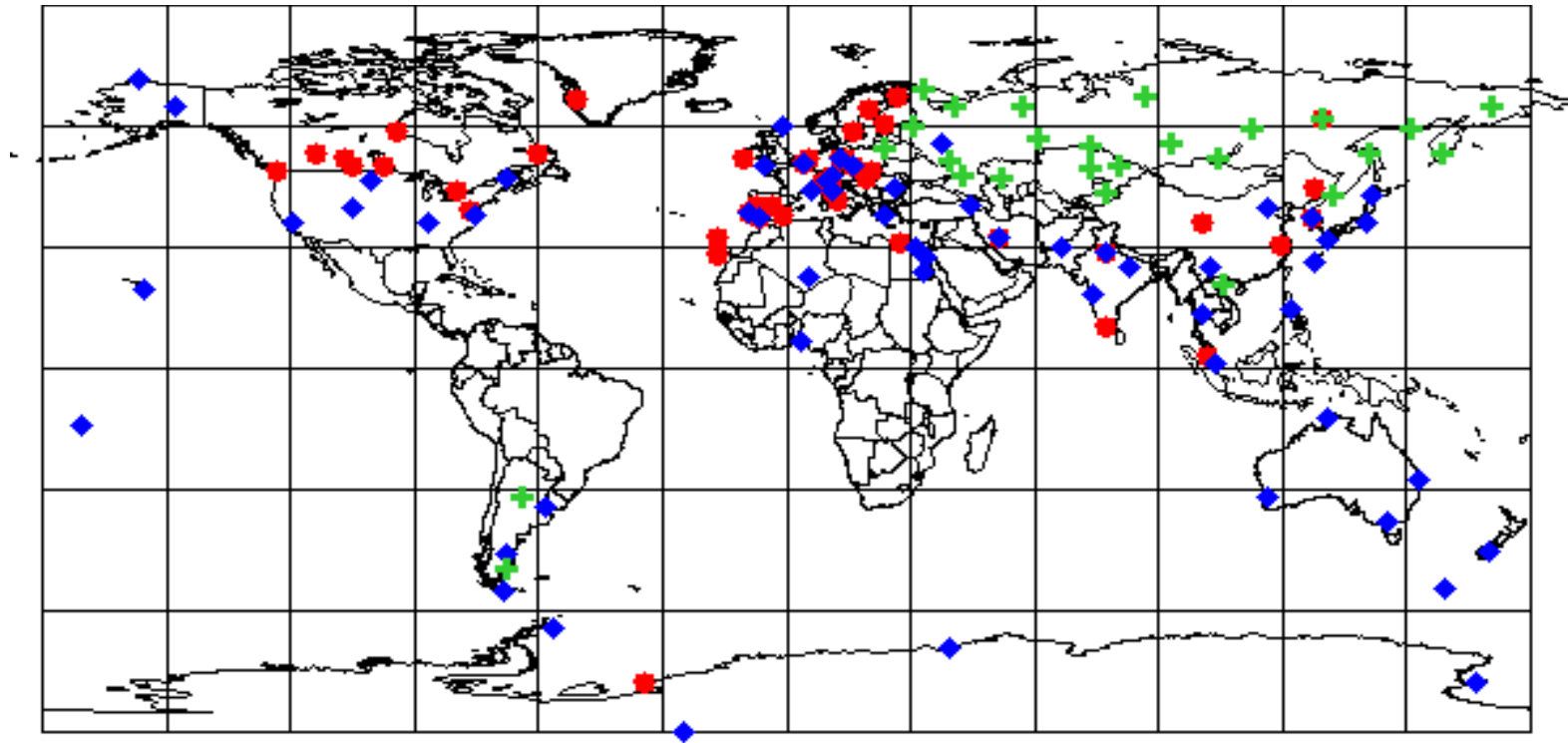
Stations with data submitted since at least 1 Jan 1999



Compliments of WOUDC, Toronto Ed Hare Manager. Note that this map changes constantly as data is submitted to the data centre. Suggestions to correct any omissions are welcome by GAW. The red symbols represent sites of contributing partner NASA/SHADOZ.

ESTIMATED GLOBAL COLUMN OZONE NETWORK: 2003

Stations with data submitted since at least 1 Jan 1999

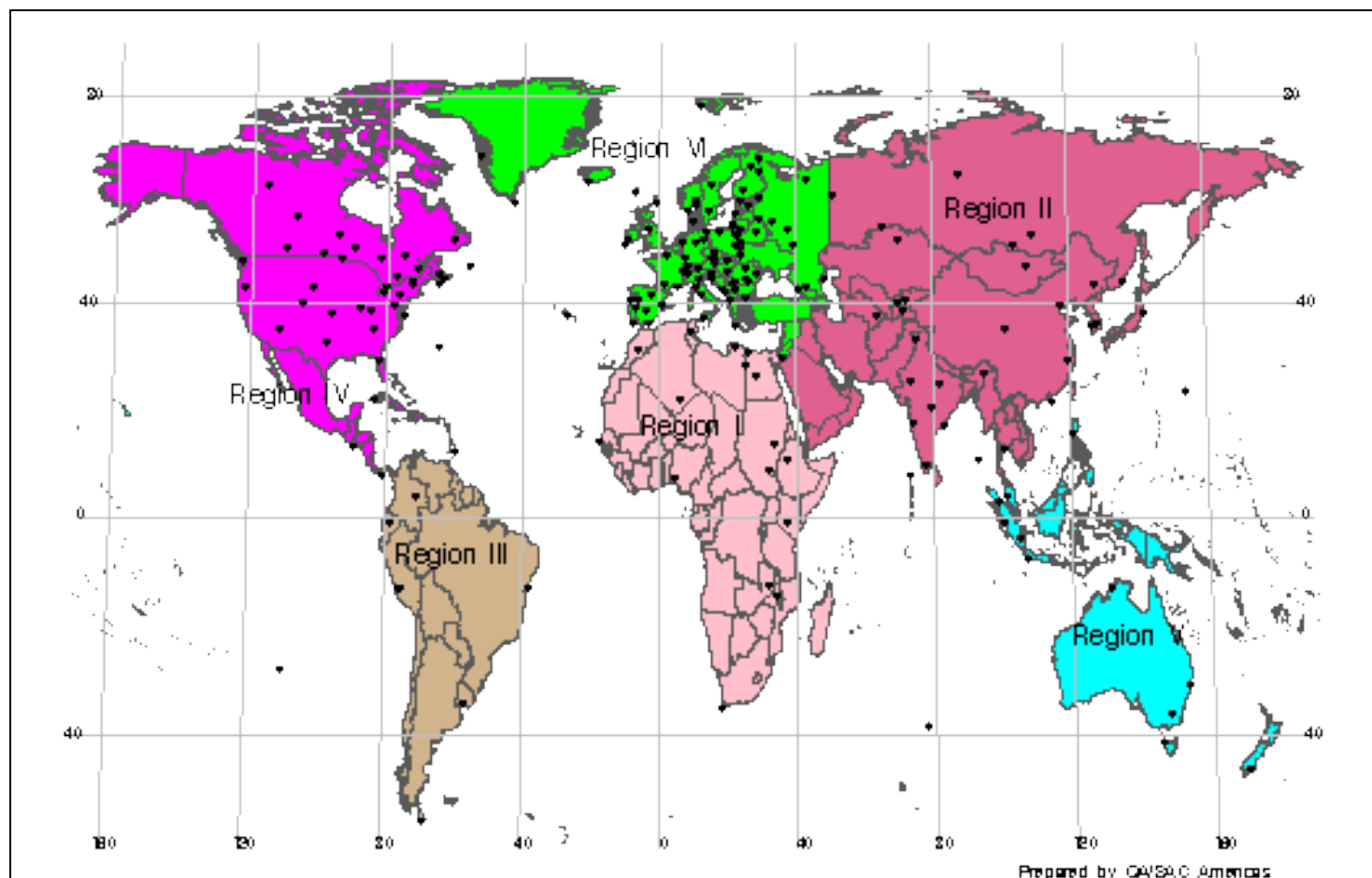


+ Filter ♦ Dobson * Brewer

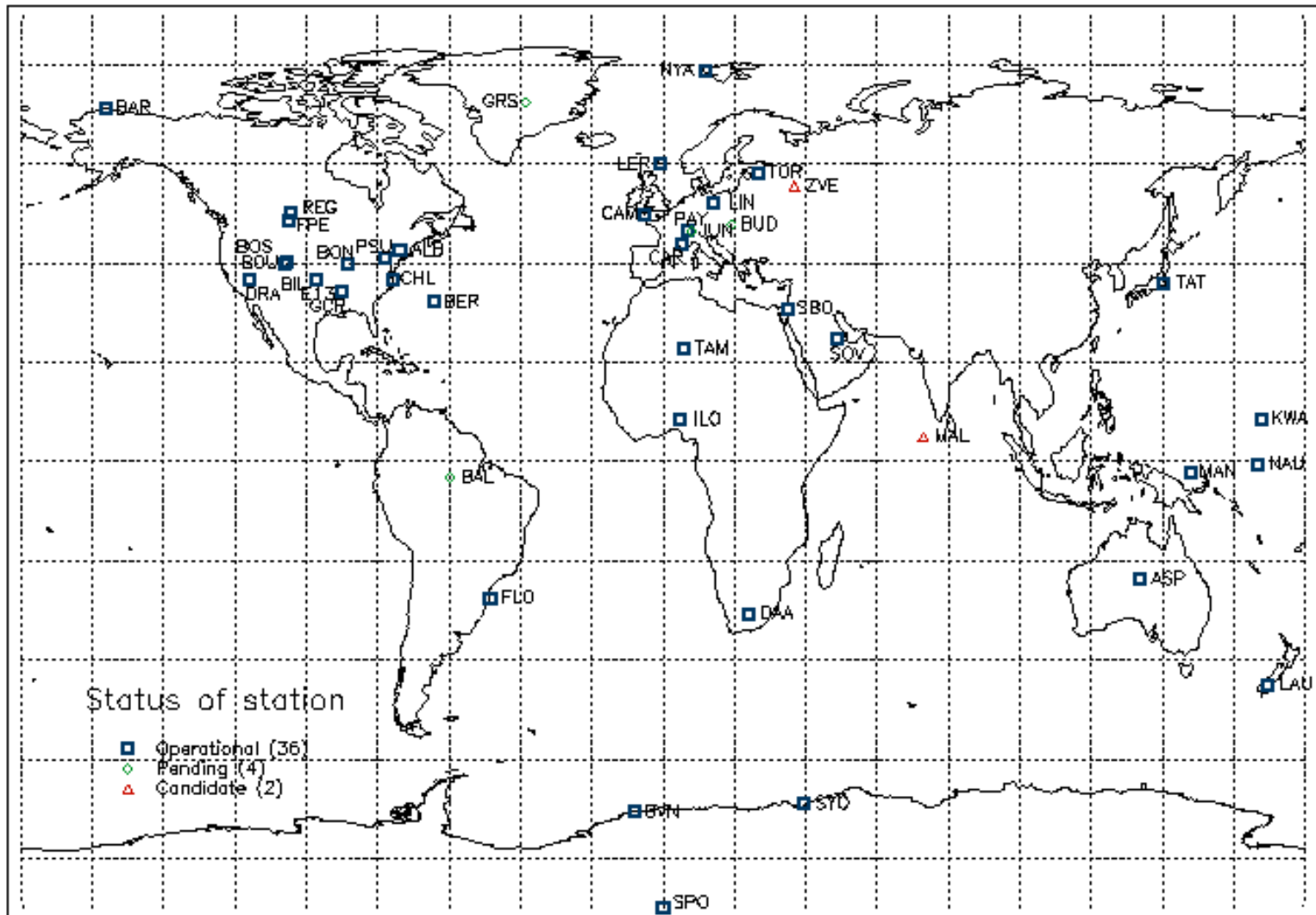
Compliments of WOUDC, Toronto Ed Hare Manager. Note that this map changes constantly as data is submitted to the data centre. Suggestions to correct any omissions are welcome by GAW. The symbols represent different instrument types.

GAW Precipitation Chemistry Monitoring Stations

<http://www.qasac-americas.org>



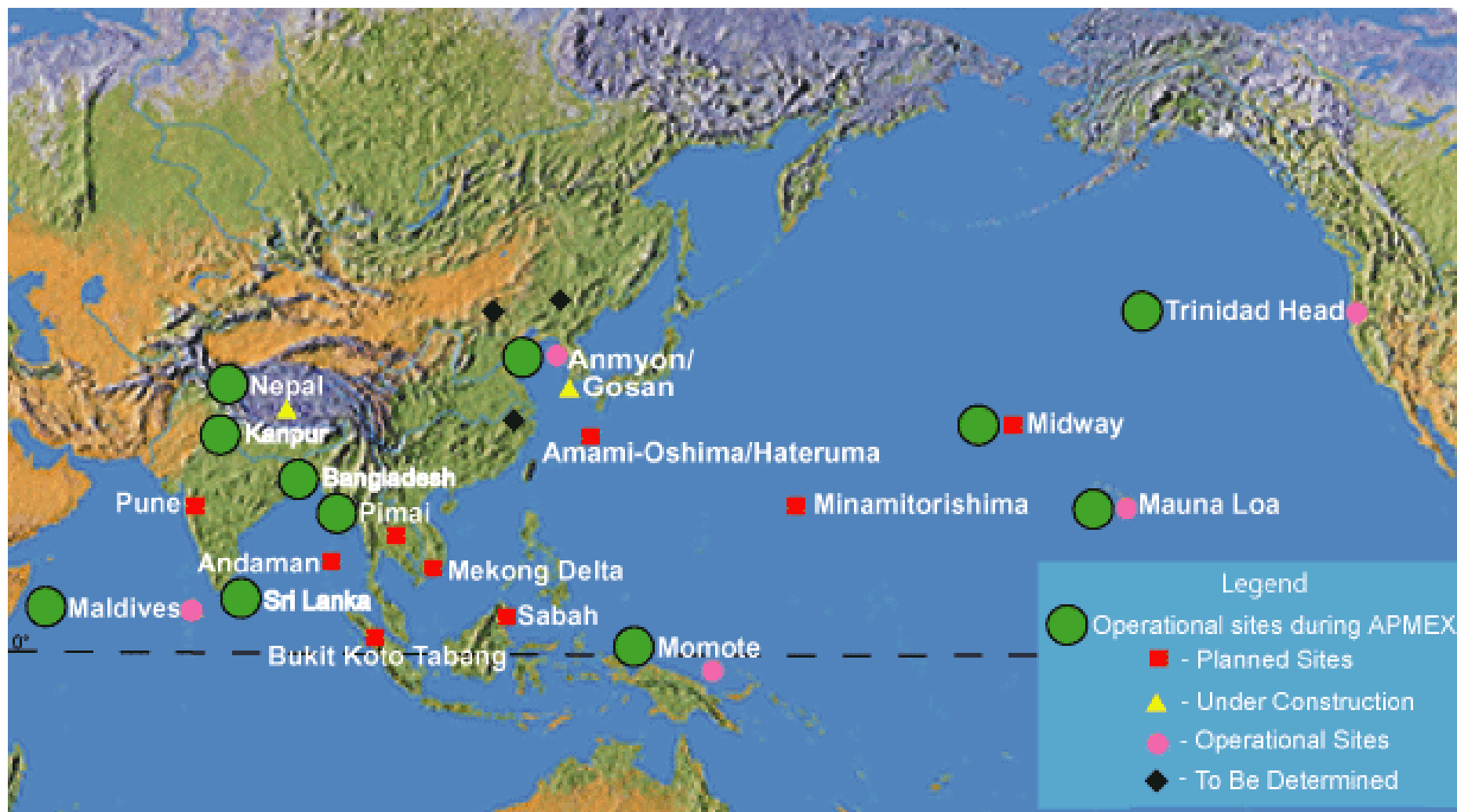
BSRN





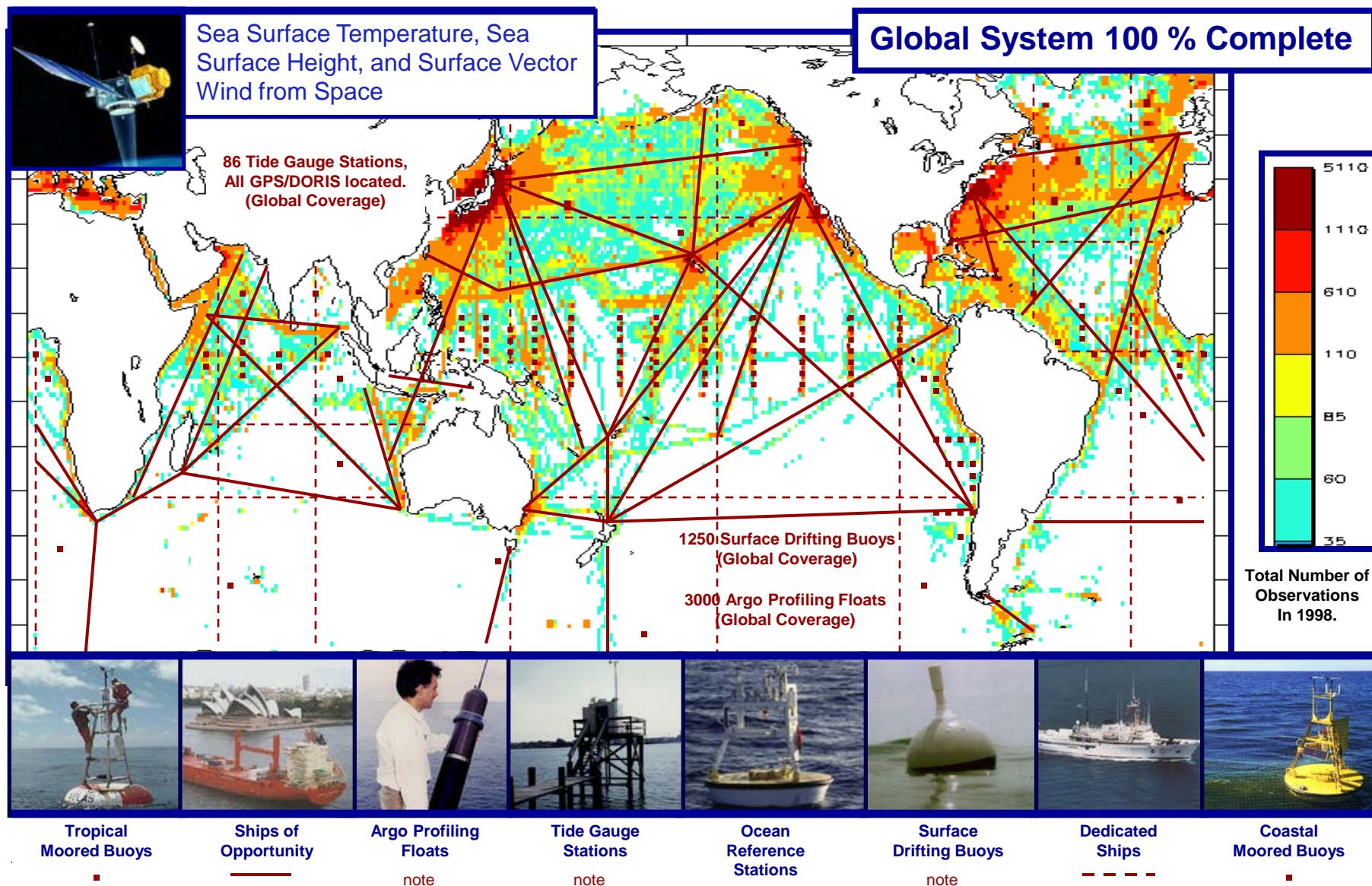
Center for
Clouds,
Chemistry &
Climate

Project Atmospheric Brown Cloud (ABC) *Surface Observation System*





The Future Sustained Ocean Observing System for Climate -- Target 2008





GCOS OBSERVING NETWORKS

◆ TERRESTRIAL OBSERVATIONS:

Climate Components of:

- 📄 **Coral Reef Monitoring (e.g., Hotspot Monitoring)**
- 📄 **Coastal Observations (e.g., IOOS)**
- 📄 **Other Paleoclimate Proxies**
- 📄 **Carbon Flux (FLUXnet)**
- 📄 **Hydrology (GTN-H) [proposed]**
- 📄 **Permafrost (GTN-P)**
- 📄 **Glaciers (GTN-G)**



GCOS Budget Support Philosophy



- **Based on priorities from GCOS Atmospheric Observations Panel for Climate (AOPC), NOAA Climate Monitoring Working Group, the GCOS Secretariat, Regional Workshops, US International Commitments**
- **Basic Observing System Support for GUAN/GSN w/Supplies**
- **Support to GAW Quality Assurance/Science Applications Center and Central UV Calibration Facility**
- **Support for Atmospheric Brown Cloud (ABC)**
- **Data Management Support at NCDC in its role as a CBS Lead Centre for GCOS Data**
- **Support for Full-Time GCOS Implementation Manager**
- **Support for Bi-Lateral Climate Activities (e.g., Australia, NZ, and South Africa) and Pacific Regional GCOS Activities**

Domain	Essential Climate Variables
Atmospheric (over land, sea and ice)	<p>Surface: Air temperature, Precipitation, Air pressure, Surface radiation budget, Wind speed and direction, Water vapor.</p> <p>Upper-air: Earth radiation budget (including solar irradiance), Upper-air temperature (including MSU radiances), Wind speed and direction, Water vapor, Cloud properties.</p> <p>Composition: Carbon dioxide, Methane, Ozone, Other long-lived greenhouse gases, Aerosol properties.</p>
Oceanic	<p>Surface: Sea-surface temperature, Sea-surface salinity, Sea level, Sea state, Sea ice, Current, Ocean color (for biological activity), Carbon dioxide partial pressure.</p> <p>Sub-surface: Temperature, Salinity, Current, Nutrients, Carbon, Ocean tracers, Phytoplankton.</p>
Terrestrial	<p>River discharge, Water use, Ground water, Lake levels, Snow cover, Glaciers and ice caps, Permafrost and seasonally-frozen ground, Albedo, Land cover (including vegetation type), Fraction of absorbed photosynthetically active radiation (FAPAR), Leaf area index (LAI), Biomass, Fire disturbance.</p>



U.S. GCOS Funding – FY04



- Atmospheric Brown Cloud (ABC) Observatories - \$1398K
- GUAN Support - \$1050K
- State Dept Support (Workshops and Bi-Laterals) - \$ 500K
- Support for GAW QA/SAC for Aerosols - \$ 265K
- Data Management Support at NCDC - \$ 202K
- U.S. GCOS Office Support - \$ 300K
- Bi-Lateral Support - \$ 189K
- GOSIC - \$ 125K
- Full-Time GCOS Implementation Project Manager - \$ 110K (WMO)
- Regional Support (Pacific) - \$ 95K
- GSN Support \$ 53K (CRN)

Funds Available: \$4287K (\$3787K + \$500K)

FY05 President's Budget: \$3921K



U.S. GCOS CCRI Funding – FY04

GUAN Sites and Support – w/Guidance and In Coordination w/GCOS Secretariat

- **Windhoek, Namibia**
- **Yerevan, Armenia**
- **Douala, Cameroon**
- **Dakar, Senegal**
- **Lima, Peru**
- **Bauerfield, Vanuatu**
- **Addis Ababa, Ethiopia**
- **Radiosondes and Supplies for a number of sites in
developing nations**



State Dept IPCC Funding for GCOS in FY04 (Total of \$500K)



- **GUAN Support in South and East Africa - \$ 275K**
- **IPCC Software Support - \$ 160K**
- **IPCC Workshop Support - \$ 65K**

Global Observing System Information Center (GOSIC)

<http://gotic.org>

The screenshot shows a Netscape browser window titled "Home Page for the Global Observing Systems Information Center - Netscape". The address bar displays "http://gotic.org/". The browser's toolbar includes buttons for Back, Forward, Reload, Home, Search, Netscape, Print, Security, Shop, and Stop. A bookmarks bar is visible below the toolbar. The main content area features a large banner with the GOSIC logo and the text "Global Observing Systems Information Center". Below the banner, a navigation menu on the left lists: Home, What's New, About GOSIC, GCOS, GOOS, GTOS, Maps, Search, Publications, Acronyms, and Contact Us. The main content area is titled "The Global Observing Systems Information Center" and includes the following text: "GOSIC provides access to data and information, and overviews of the structure and programs for the Global Climate Observing System (GCOS), the Global Ocean Observing System (GOOS), and the Global Terrestrial Observing System (GTOS)". Below this, there are three sections: "Data and Information:", "Dataset Registry:", and "Program Information:". Each section contains a list of links and descriptions. The "Data and Information" section includes links to "Access Data and Information from the Integrated Observing Systems (IOS) Networks", "Access Maps", and "National Commitments". The "Dataset Registry" section includes links to "Access Data in the GOSIC Dataset Registry" and "Search/List". The "Program Information" section includes a link to "Review the scientific and technical basis for the design of the observing systems". The browser's status bar at the bottom shows the URL "http://gotic.org/default.htm" and the time "8:19 AM".

Home Page for the Global Observing Systems Information Center - Netscape

File Edit View Go Communicator Help

Free AOL & Uni Instant Message Internet Lookup New&Cool RealPlayer

Bookmarks Location: <http://gotic.org/> What's Related

Back Forward Reload Home Search Netscape Print Security Shop Stop

GOSIC
Global Observing Systems Information Center

Facilitating Access to Global Observing Systems Data & Information

The Global Observing Systems Information Center

GOSIC provides access to data and information, and overviews of the structure and programs for the Global Climate Observing System (GCOS), the Global Ocean Observing System (GOOS), and the Global Terrestrial Observing System (GTOS)

Data and Information:

- Access Data and Information from the Integrated Observing Systems (IOS) Networks** established by: | [GCOS](#) | [GOOS](#) | [GTOS](#) |
- Access Maps** displaying information such as, data, locations of observing sites, geographic coverage and status of data collection or some other characteristic of the observing networks. | [Maps](#) |
- National Commitments** are described in terms of programs, measurement types and observing sites and schedules | [GOOS](#) |

Dataset Registry:

- Access Data in the GOSIC Dataset Registry** either by **searching** the NASA Global Change Master Directory ([GCMD](#)) or by **listing** the GOSIC Database G3OS datasets: | [Search/List](#) |

Program Information:

- Review the scientific and technical basis for the design of the observing systems | [GCOS](#) | [GOOS](#) | [GTOS](#) | [GOSIC](#) | [G3OS](#) |

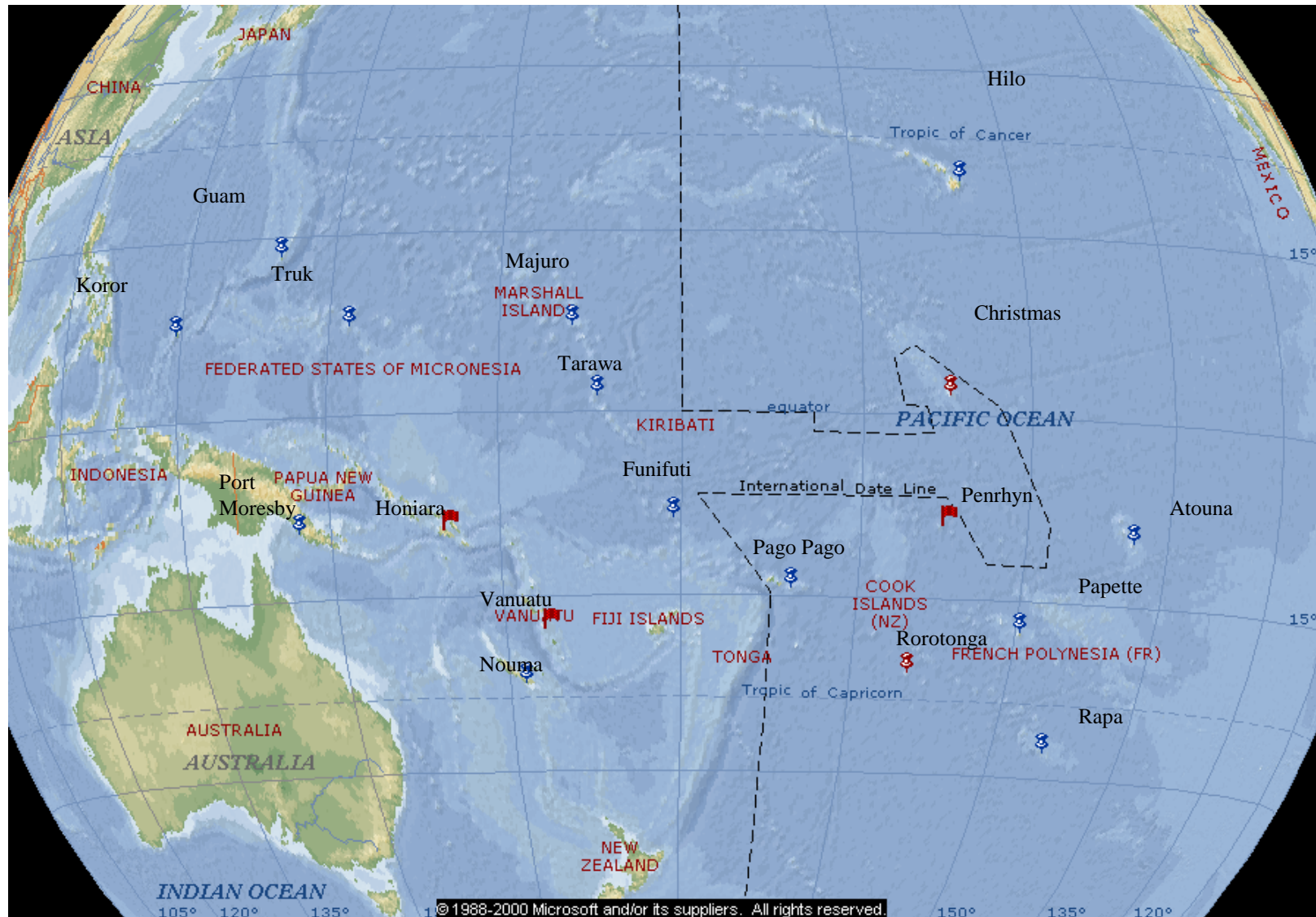
Start AirCard 555 Watcher Will be on Leave - Inbox ... Home Page for the Gl... Microsoft PowerPoint - [...]

8:19 AM

GCOS Budget Planning and Challenges for FY05 and Beyond

- **Continued GSN and GUAN Support in Developing Nations**
- **Continued Support of Regional GCOS Activities**
- **Continued Data Management Activities at NCDC**
- **Continued Bi-Lateral Work (e.g., Australia, NZ, S. Africa)**
- **Enhanced Upper Air Water Vapor Measurements**
- **Funding for U.S. BSRN Program (e.g., CUCF)**
- **Enhancements to Atmospheric Brown Cloud Network**
- **Ozonesonde Observations in Developing Nations**
- **Enhanced radiosonde observations in support of the African Monsoon Multi-Disciplinary Analysis (AMMA) in 2006/7**

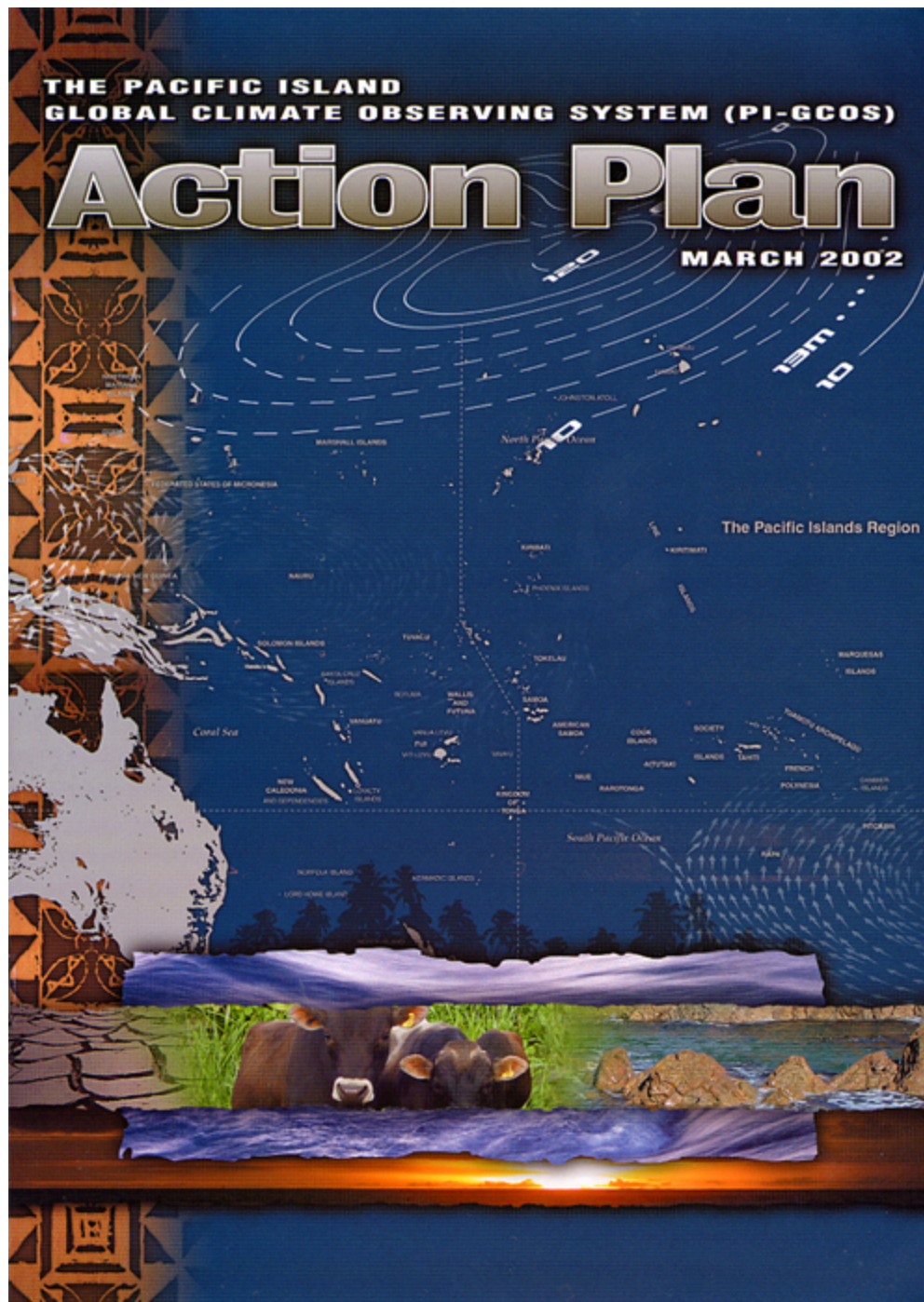
Pacific Island GCOS (PI-GCOS)



THE PACIFIC ISLAND
GLOBAL CLIMATE OBSERVING SYSTEM (PI-GCOS)

Action Plan

MARCH 2002





PI-GCOS Implementation



- **Regional GCOS Implementation Plan Developed (Still in Draft)**
- **Prioritized list of 31 Projects in 5 Objective Areas**
 - **Advocacy**
 - **Sustaining Operational Observing Networks**
 - **Managing and Exchanging Regional GCOS Data**
 - **Accessing and Developing Products and Services**
 - **Building Capacity for Long-Term PI-GCOS Sustainability**
- **Selected Projects With Identified Funding**
 - **Regional GCOS Coordinator [US]**
 - **Demonstration Project for GCOS [NZ]**
 - **Expanding the Use of Climate Prediction [BoM]**
 - **Maintenance Support**
 - **Pacific Data Portal – [funded part of Project 26 for Regional Database]**
- **Scope of the other 27 Pacific Island GCOS Projects is in the range of \$24M (US) over the period from 2004 through 2008**



Summary of Recent PI-GCOS Activities



- **3rd Asia-Pacific Workshop on Climate Variability and Trends in Oceania [Auckland, NZ from December 8-11, 2003]**
- **PI-GCOS Regional Program Coordinator Selected; Dr. Mark Morrissey Began Position in Apia, Samoa on January 14, 2004**
- **First PI-GCOS Steering Committee Meeting Scheduled for February 4-6, 2004 in Suva, Fiji; intent is to develop a work plan for 2004/5**
- **Pacific Island Training Institute on Climate and Extreme Events planned for June 15-28, 2004 at the University of the South Pacific in Suva, Fiji [Sponsors: APN, NOAA, East-West Center, NIWA, University of South Pacific.**
- **Next Regional Committee Meeting Slated for April 2005 in Niue**

PI-GCOS Web Site at <http://pi-gcos.org>

PI-GCOS Home Page - Netscape

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Free AOL & Uni Instant Message Internet Lookup New&Cool RealPlayer

Bookmarks Location: <http://www.pi-gcos.org/> What's Related


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Pacific Islands Global Climate Observing System (PI-GCOS)

PI-GCOS


Establishing a robust and sustainable Pacific Island GCOS that meets the long-term climate observation needs of the region and the world

What is GCOS?



PI-GCOS ACTION PLAN

RECENT NEWS



Document: Done

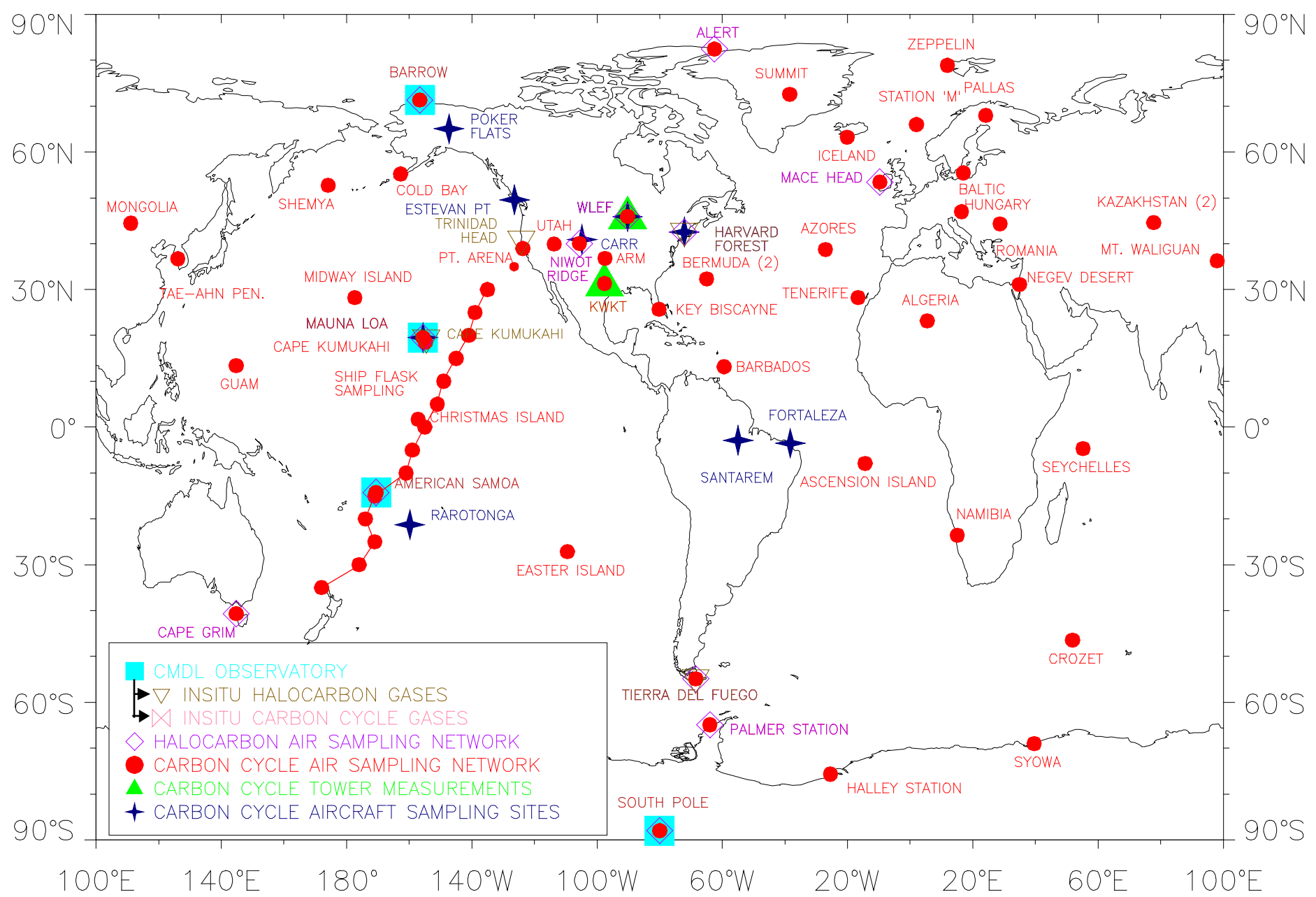
Start OCP chapter "0... Search Messages PI-GCOS Hom... C:\My Documen... Pacific GCOS Bri... Pacific Island G... 9:46 PM

US/NZ Bi-Lateral Climate Activities Related to GCOS

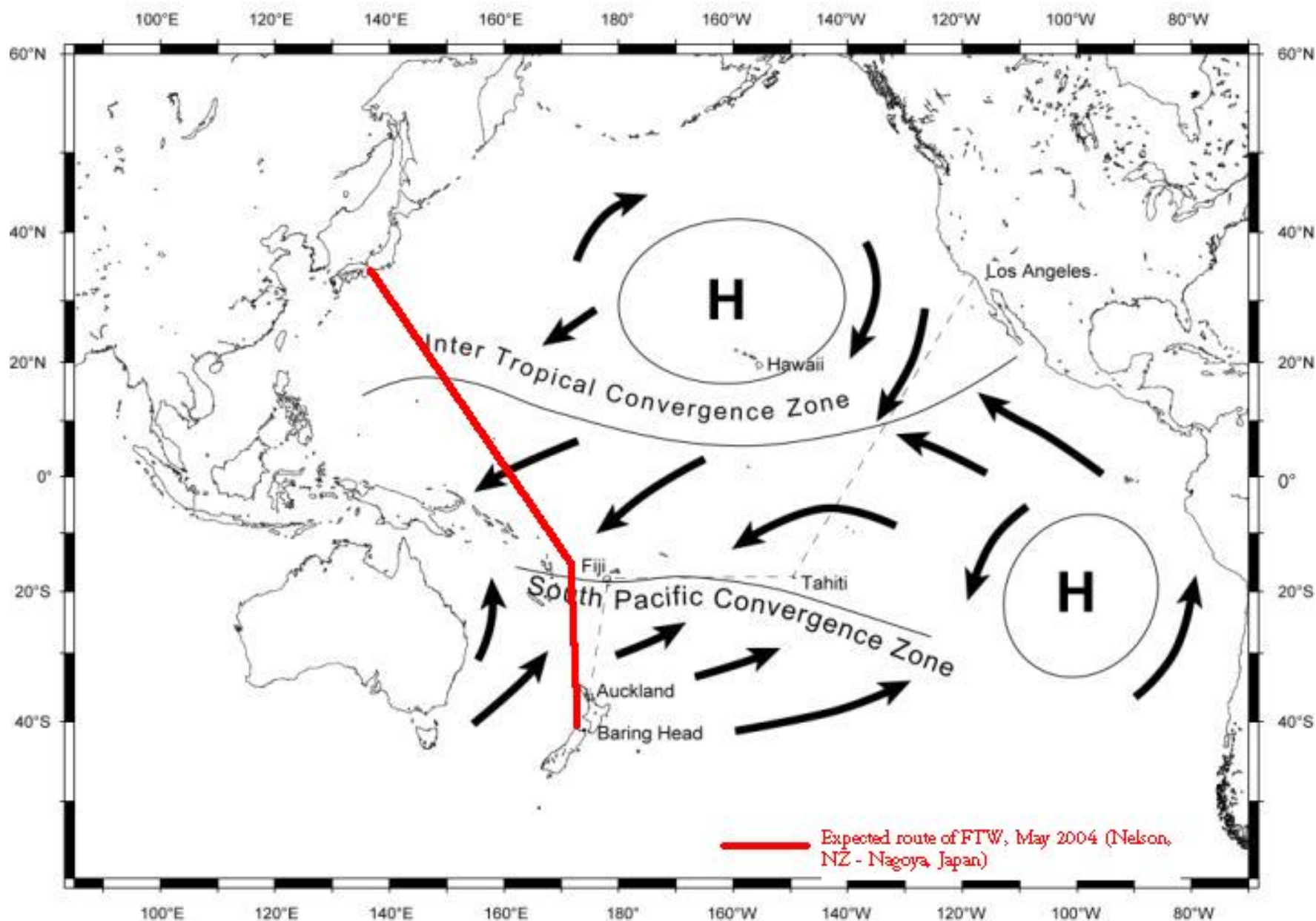
- **Bi-Lateral Climate Change Partnership signed July 2003**
- **9 out of 26 proposals involve NOAA and NIWA; 7 of the 9 address specific observing projects as follows:**
 - **Proposed Flask Sampling From a Ship Plying The Western Pacific for CO₂ Measurements in the Southern Ocean**
 - **Stratospheric Water Vapor Profiles at Lauder, New Zealand**
 - **Dobson Spectrophotometer Measurements of Stratospheric Ozone**
 - **Network for the Detection of Stratospheric Change (NDSC)**
 - **Surface Ozone Measurement Project at South Pole**
 - **Improved climate monitoring systems for the Pacific (GCOS)**
 - **Improved ocean climate observations for the Pacific (GOOS)**

Joint US/NZ Trace Gas Sampling Project

- **Experimental New Ship Track**
- **Will be conducted on a car carrier ship between NZ and Japan across the South Pacific and Inter Tropical Convergence Zones (First Cruise 30-April-2004)**
- **NOAA/CMDL Flask Measurements**
 - **PI: Ed Dlugokencky**
 - **CO₂, N₂O, SF₆, CH₄, H₂, CO, C-13&O-18 in CO₂**
 - **H₂/Deuterium Ratio for Atmospheric CH₄**
- **NIWA**
 - **PI: Dave Lowe**
 - **¹⁴CO as an isotopic tracer for looking at changes in the oxidizing capacity of the atmosphere across the convergence zones**
- **Initial results to be reported at 8th International Global Atmospheric Chemistry Conference in September 2004**

[illegible]

Additional US/NZ Trace Gas Flask Sampling

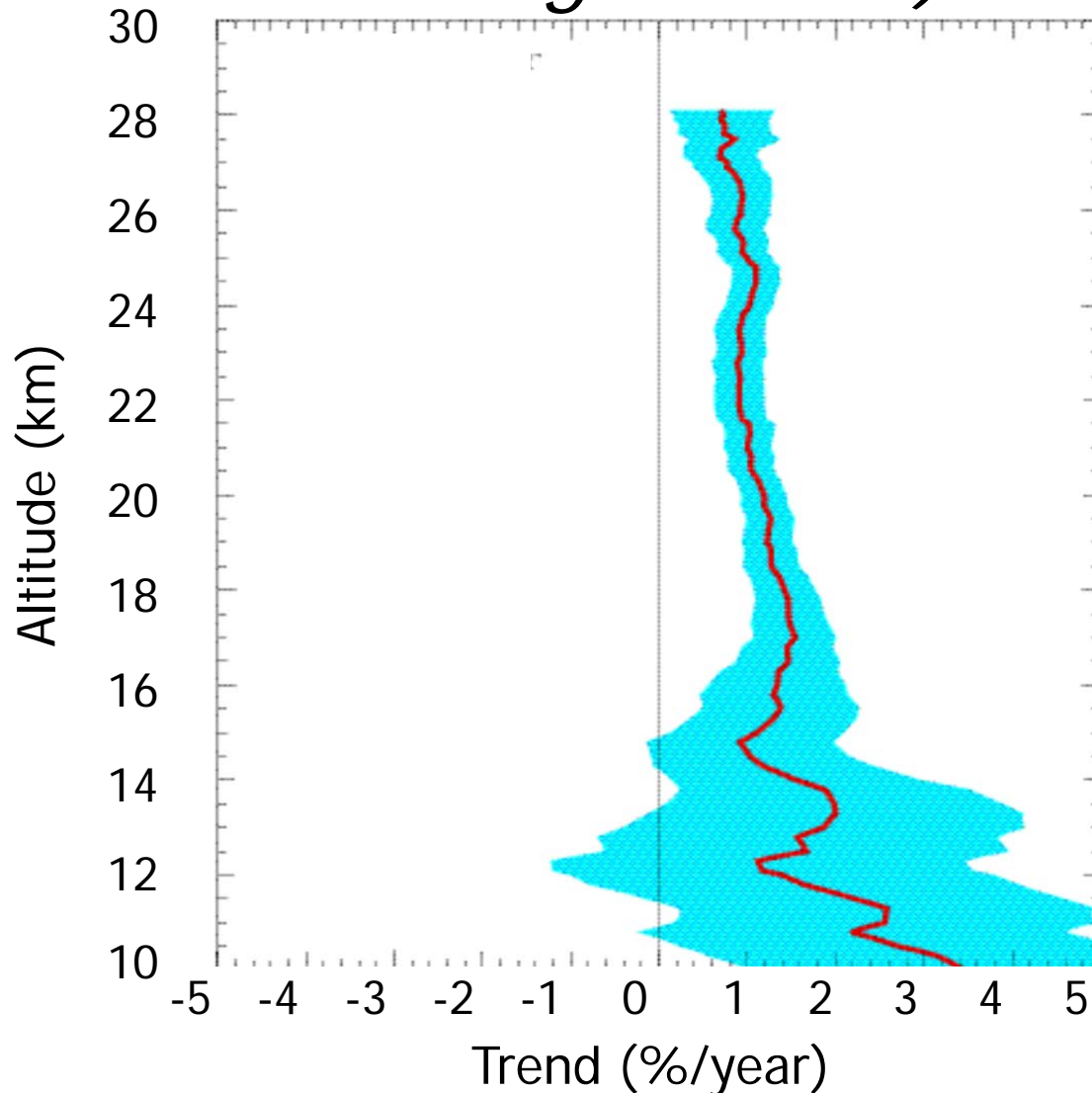




FUJITRANS WORLD

TOWNE

*Trend of Water Vapor Over Boulder, CO
(1980-2000) for All Months (Begun in Lauder,
NZ in August 2004)*



<http://oco.noaa.gov>

OCO Home Page - Microsoft Internet Explorer


File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Media History Mail Print Edit Discuss Real.com

Address <http://nedi1.nedi.gov:8080/oco/index.jsp> Go


OFFICE OF CLIMATE OBSERVATION (OCO)

MAPS DATA PARTNERSHIPS FUNDED PROJECTS CONTACT US HOME SITE INDEX



→ OCEANIC

- ROLE OF THE OCEAN IN CLIMATE
- STATE OF THE OCEAN
- STATE OF THE OBSERVING SYSTEM
- STATE OF THE SCIENCE
- PROGRAM PLAN
- MEETINGS
- TEACHER @ SEA
- REPORTS & PRODUCTS




Mission:

Build and sustain a global climate observing system that will respond to the long-term observational requirements of the operational forecast centers, international research programs, and major scientific assessments.


Goals:

- * Document long term trends in sea level change
- * Document ocean carbon sources and sinks
- * Document the ocean's storage and global transport of heat and fresh water
- * Document the ocean-atmosphere exchange of heat and fresh water



→ ATMOSPHERIC

- PROGRAM PLAN
- MEETINGS & EVENTS
- REPORTS
- WORKSHOPS



Mission:

To ensure that the observations and information needed to address climate-related issues are obtained and made available to all potential users.

Goals:

- * Monitoring the impacts of and the response to climate change
- * Early detection of climate change due to human activity
- * Improving data for impact analysis
- * Reducing major uncertainties in long-term climate activities

NEWS & EVENTS

Global Observing System hits milestone with 1,000th ARGO float

Reinvigorated international cooperation is required to meet major new challenges

About the Ocean Observing System (video)

CONTACT INFO

Address:
NOAA/OGP
1100 Wayne Avenue
Suite 1210
Silver Spring, MD 20910

Phone:
(301) 427-2089

Fax:
(301) 427-0033

Email:
oco@noaa.gov

Page Updated: 02/19/04

Start

RE: GCOS Cooperation M... OCO Home Page - Netscape OCO Home Page - Micr...

Internet

11:40 AM



Contact Information

**Howard J. Diamond, E/CCx1
U.S. GCOS Program Manager
NOAA/NESDIS/NCDC**

**1335 East-West Highway, Room 7214
Silver Spring, MD 20910**

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