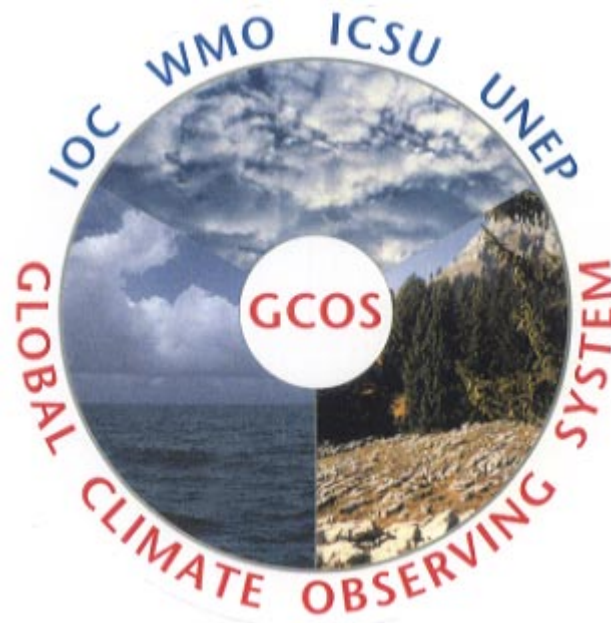


# **STATUS OF THE U.S. NATIONAL GLOBAL CLIMATE OBSERVING SYSTEM (GCOS) PROGRAM**



**Caribbean Observations in a Global Context**

**CPACC, World Bank, OAS, CIDA, GCSI Technical Meeting**

**28 February-02 March, 2001**

**Barbados**

**Howard J. Diamond, U. S. GCOS National Coordinator**

# AGENDA

- ◆ **Background of U.S. GCOS Program**
- ◆ **U.S. GCOS Program Objectives**
- ◆ **Strategy for Building the U.S. GCOS**
- ◆ **GCOS Monitoring at NCDC**
- ◆ **National Issues**
- ◆ **Pacific Region GCOS Workshop**
- ◆ **Contact Information**



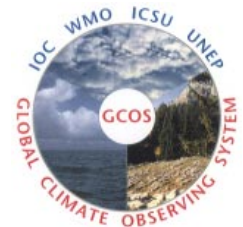
# Background of U.S. GCOS Program

- Continued Participation Since the Inception of GCOS
- Continued Participation in the GCOS Science Panels
- Support of Science Panels at National Climatic Data Center
- U.S. GCOS Program Manager and National Focal Point Established by NOAA/NESDIS in November 1999
- U.S. GCOS Coordination Group Established in January 2000
  - First Meeting - January 2000; Five Additional Meetings Since
  - Terms of Reference Being Developed
  - Members: NOAA, NASA, NSF, NAS, USDA, DOE, EPA, USGS
  - Initial Focus: Preparation of National GCOS Report for COP-7
- Support for GCOS Provided by NOAA Administrator and NESDIS Assistant Administrator (AA)
- NESDIS AA - U.S. Representative on GCOS Steering Committee



# U.S. Objectives for GCOS

- **Develop U.S. GCOS Plan and Web Page**
- **Prepare National Report for COP-7 (June 2001)**
- **Develop Web Access to GSN/GUAN Data at NCDC**
- **Develop Observing System Performance Indicators**
- **Provide Continued Support to GCOS Secretariat at WMO**
- **Coordinate with Other U.S. Groups and Committees**
  - **USGCRP, FGDC, and OFCM Committees**
  - **U.S. CLIVAR Program Office**
  - **Climate Components of GOOS and GTOS**
- **Provide National Focus and Coordinate International GCOS Activities With**
  - **GCOS Secretariat at WMO/Regional Workshops**
  - **Other National GCOS Focal Points**
  - **UNEP-GRID, CEOS-WGISS, etc...**



# Strategy for Building the U.S. Global Climate Observing System

- Use the NOAA Portion of the Global Ocean Observing System as a Model for Building a National Consensus on the Atmospheric, Oceanographic, Terrestrial, Cryospheric, and Proxy Elements of the US GCOS Program.
- Within this Context, Build a National Consensus to Establish Accountability for the Various Components of the US GCOS Program -- Objectives, Performance Measures, and Milestones.
- Define an “Initial Observing System” That Will Accomplish the Objectives and Performance Measures for GCOS.
- Expand the Atmospheric Portion of GCOS By Building Upon the Success of the Existing Elements of the GCOS Surface Network (GSN) and GCOS Upper Air Network (GUAN).



## Strategy for Building the U.S. GCOS (cont.)

- Utilize an “Initial System” Approach. Following is the Strategy Being Employed by the NOAA Portion of GOOS:
- Five Primary Elements:
  1. Tide Gauges
  2. Drifters
  3. VOS
  4. Tropical Moorings
  5. Argo Floats
- Plus three in situ:
  6. Coastal Moorings
  7. Ocean Reference Stations
  8. Ocean Carbon Monitoring
- Plus three satellite elements:
  9. Altimeter
  10. Scatterometer
  11. NOAA’s SST Capability
- Plus system-wide infrastructure:
  12. Research Ship Operations
  13. Data and Assimilation Systems (GODAE)



# GCOS Monitoring at NCDC

- Create an Inventory of the Data Received
- Collect Monthly and Daily Data (WMO Call to Countries Sep '99)
- Collect Historical MetaData (WMO Call to Countries Sep '99)
- Input to a Data Base
- Develop Web Access to the Data
- Produce Flat Files and Graphs of the Data
- Samples of Test GCOS Surface Monitoring Web Page Currently Under Development at NCDC
- [http://lwf.ncdc.noaa.gov/servlets/gsn\\_main](http://lwf.ncdc.noaa.gov/servlets/gsn_main) [Available Feb 2001]



# GSN Project

## Summary of Data Received at NCDC (1/11/2001)

<b>Country</b>	<b>Daily Data</b>	<b>Monthly Data</b>
Algeria	1940 - 1998	1940 -1998
Austria	N/A	N/A
Bosnia	1951 - 1971	N/A
China	1961 - 1999	1960 - 1990
Colombia	1972 - 1999	N/A
Egypt	1994 - 1998	1994 - 1998
France	1896 - 1999	1896 - 1999
Germany	1891 - 1999	1951 - 1995
Greece	1955 - 1995	1955 - 1995
Ireland	1941 - 1999	1941 - 1999
Israel	1950 - 1999	1950 - 1999
Japan	N/A	N/A
Korea	1949 - 1999	1949 - 1999
Malaysia	1968 - 1998	1968 - 1998
Mexico	1989 - 1999	N/A
Mongolia	1961 - 1998	1961 - 1998
New Caledonia	1951 - 2000	N/A



# GSN Project

## Summary of Data Received at NCDC (cont.)

<b>Country</b>	<b>Daily Data</b>	<b>Monthly Data</b>
Pakistan	N/A	1961-1999
Poland	1966-1998	1966-1998
Saudi Arabia	1978, 1979, 1985-1998	1978-1998
Slovakia	1951 - 1998	1951-1998
South Africa	N/A	N/A
Spain	1934 - 1999	1934 - 1999
Sudan	N/A	1961 - 1990
Sweden	1961-1999	1961-1999
Syria	1965 - 1999	1952 - 1999
United States	1949-1990	N/A
Uzbekistan	N/A	4/2000 + 5/2000

**NOTES:**

1) N/A in Both Columns Indicates Contact With the Nation Has Been Made But No Data Has Been Received to Date.

2) Other Nations' Data Not Listed May Be Available at NCDC; But Have Not Yet Been Reformatted and Databased at NCDC (e.g., U.S.)



[NCDC / Climate Data / GSN Info / GSN Obs / Search / Help](#)

## Global Climate Observing System (GCOS) GCOS Surface Network (GSN)

This NCDC database currently contains GSN data from  
**170 Stations in 24 Countries**

Select Country:

Continue

[NCDC / Climate Data / GSN Info / GSN Obs / Search / Help](#)

*Dynamically generated Tue Feb 20 12:50:20 EST 2001  
via [http://www0.ncdc.noaa.gov/servlets/rarray/gsn\\_main](http://www0.ncdc.noaa.gov/servlets/rarray/gsn_main)*

*Please send questions or comments about this system to [rray@ncdc.noaa.gov](mailto:rray@ncdc.noaa.gov).  
Please see the [NCDC Contact Page](#) if you have questions or comments.*

Select GSN Station - Netscape

File Edit View Go Communicator Help

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Bookmarks Location: [http://jstest.ncdc.noaa.gov/servlets/gsn\\_ista](http://jstest.ncdc.noaa.gov/servlets/gsn_ista) What's Related

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## Global Climate Observing System (GCOS) GCOS Surface Network (GSN)

China has 34 Stations sending GSN data

Select Station :

[NCDC](#) / [Climate Data](#) / [GSN Obs Main](#) / [Search](#) / [Help](#)

*Dynamically generated Fri Aug 25 11:25:24 EDT 2000  
via [http://jstdev.ncdc.noaa.gov/servlets/ray/gsn\\_main](http://jstdev.ncdc.noaa.gov/servlets/ray/gsn_main)  
Please send questions or comments about this system to [rray@ncdc.noaa.gov](mailto:rray@ncdc.noaa.gov)  
Please see the [NCDC Contact Page](#) if you have questions or comments.*

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Bookmarks Location: http://jstest.ncdc.noaa.gov/servlets/gsn\_datasum What's Related

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## GCOS Surface Network (GSN)

### Beijing, China

WMO 54511 has 30 Years of GSN data

Select Year: All Years

Inventory  Plot Data  Data Listing

Continue

[NCDC / Climate Data / GSN Obs Main / Search / Help](#)

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via [http://jstest.ncdc.noaa.gov/servlets/rray/gsn\\_main](http://jstest.ncdc.noaa.gov/servlets/rray/gsn_main)  
Please send questions or comments about this system to [rray@ncdc.noaa.gov](mailto:rray@ncdc.noaa.gov)

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Bookmarks Location: [http://jstest.ncdc.noaa.gov/servlets/gsn\\_query](http://jstest.ncdc.noaa.gov/servlets/gsn_query) What's Related

[NCDC / Climate Data / GSN Obs Main / Search / Help](#)

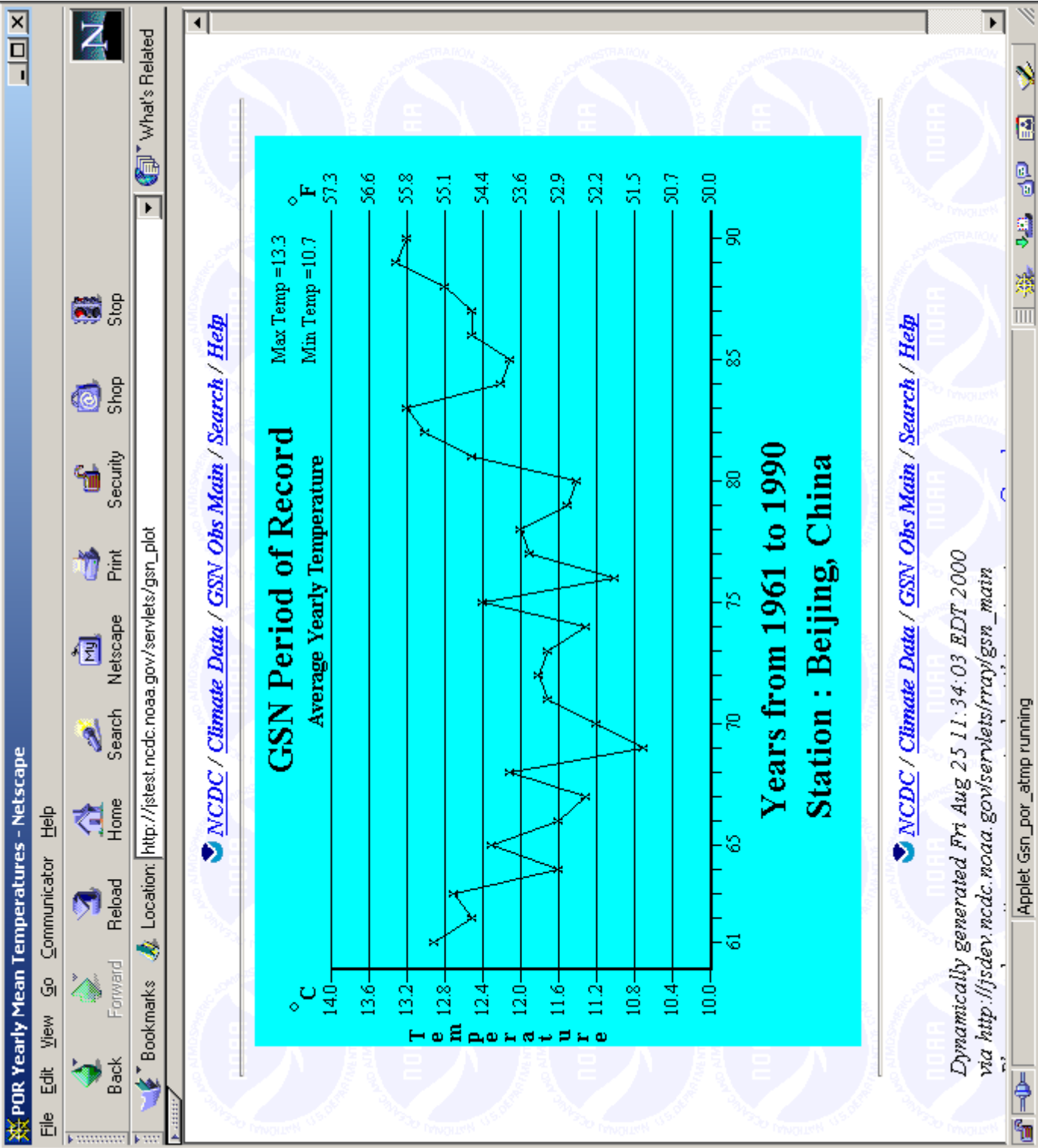
## GCOS Surface Network (GSN)

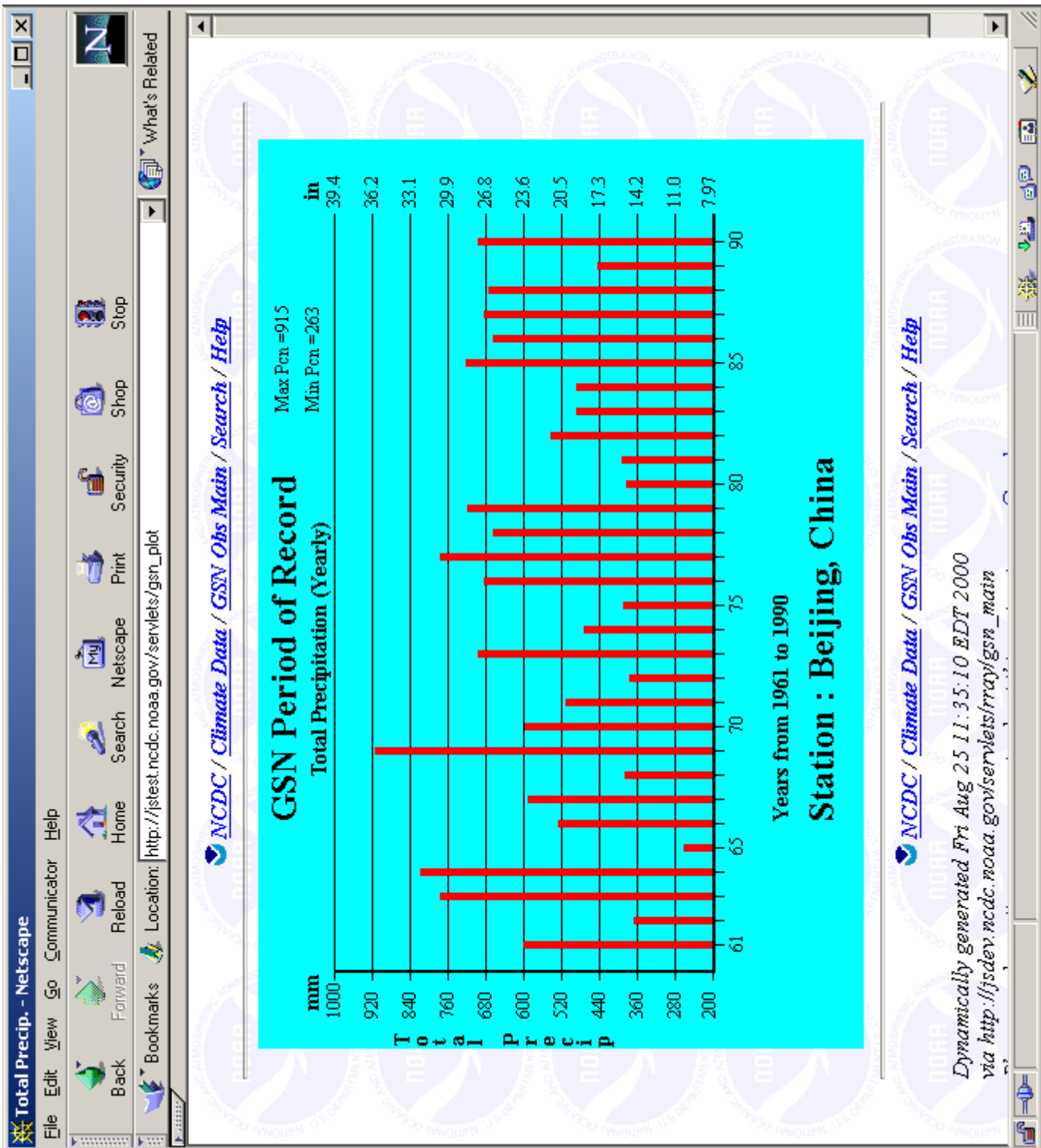
### Beijing, China

#### Monthly Data

Years	Months	Max Temp	Min Temp	Mean Temp	Station Press	Sea Lvl Press	Precip
1961	12	12	12	12	12	0	12
1962	12	12	12	12	12	0	11
1963	12	12	12	12	12	0	12
1964	12	12	12	12	12	0	11
1965	12	12	12	12	12	0	10
1966	12	12	12	12	12	0	12
1967	12	12	12	12	12	0	11
1968	12	12	12	12	12	0	11
1969	12	12	12	12	12	0	12
1970	12	12	12	12	12	0	10
1971	12	12	12	12	12	0	10

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Display GSN - Netscape

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Bookmarks Location: [http://jstest.ncdc.noaa.gov/servlets/gsn\\_query](http://jstest.ncdc.noaa.gov/servlets/gsn_query) What's Related

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**NCDC / Climate Data / GSN Obs Main / Search / Help**

**GCOS Surface Network (GSN)**

**Beijing, China**

Select Month & Year - 01 - 1961 - Display

Current Date : JAN, 1961

**Monthly Record**

	Avg Temp	Min Temp	Max Temp	Station Press	Sea Level Press	Precip
	-003.6	-008.8	0002.2	1021.3		000004

**Daily Records**

Day	Avg Temp	Min Temp	Max Temp	Station Press	Sea Level Press	Precip
01	-008.7	-010.7	0004.4	1015.9		
02	-004.6	-005.2	0000.7	1019.3		
03	-008.5	-009.4	0002.3	1026.7		
04	-004.2	-009.2	-001.4	1026.0		
05	-011.2	-012.4	-001.0	1025.9		
06	-012.5	-013.4	-000.3	1016.8		
07	-009.1	-010.5	0003.0	1013.6		
08	-006.5	-008.3	0003.8	1018.8		
09	-008.9	-009.5	-000.2	1033.5		
10	-008.9	-011.1	-004.4	1033.3		
11	-009.4	-012.0	-001.7	1027.0		

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# U.S. National Issues

- **Get a Better Handle on the Atmospheric Portion of GCOS in the U.S. (e.g., New Climate Reference Network; Modernized Cooperative Observer Network; Incorporation of Flask Network; Incorporation of DOE Radiation Monitoring)**
- **The Focus for the Terrestrial Element of GCOS in the U.S. is Less Well Defined Than for the Atmospheric and Oceanographic Elements. Strengthen the Links to GTOS (e.g., USGS' Hydrology Program; USDA's Observation Networks; DOE's Radiation Observation Network; etc.)**
- **Develop a Permanent U.S. Budget for GCOS (e.g., Support for the GCOS Secretariat at WMO, Regional Workshops, etc.)**



# Pacific Region GCOS Workshop

- **The first of 10 GCOS Regional Workshops Was Conducted in Apia, Samoa, 14-15 August 2000. Jointly Sponsored by the GCOS Secretariat at the WMO and the South Pacific Regional Environment Programme (SPREP).**
- **Attendees were from all SPREP Nations in Addition to Representatives from China, Finland, Italy, the IOC Regional Programme Office, the WMO, and SOPAC.**
- **The Focus for the Workshop was on the Development of an Action Plan for Improved Climate Monitoring in the Pacific.**
- **Presentations and Discussions Sensitized the Attendees to the Importance of GCOS in and to the Pacific Region.**



## Pacific Region GCOS Workshop (cont)

- **Of Particular Importance was the Discussion on the Relationship of Observations for Short-Term Weather Forecasting Versus the Need for Long-Term Homogeneous Observations for Climate Study.**
- **UNFCCC Decision 4/CP.5 Outlined Guidelines for the Preparation of National Communications by Parties Included in Annex I to the Convention; Decision 5/CP.5 Invited all Parties to Provide a Detailed Report, and Requested the GCOS Secretariat to Organize Regional Workshops.**
- **A Coordinated Regional Approach Through the Formulation of National Climate Monitoring Plans Would Provide a Framework for the National Reports.**



## **Pacific Region GCOS Workshop (cont)**

- **The Need to Support the Long-Term Operation of National and Regional Monitoring Infrastructure was an Important Topic (e.g., Regional Climate.**
- **There were a Number of Elements for the Proposed Regional Action Plan, Some of The Highlights Include:**
  - **Identification of Deficiencies in Climate Monitoring Capabilities**
  - **Determine Priority Observing System Needs**
  - **Discussion of a Regional Approach to Climate Data Management**
  - **Develop a Strategy to Seek Assistance to Implement the Plan from Donor Countries, the GEF, and/or Other International Organizations**
- **A Follow-up Meeting Consisting of a Subset of SPREP Members Has Been Tentatively Scheduled to Take Place in Honolulu in the June/July 2001 Timeframe to Write the Detailed GCOS Regional Action Plan.**

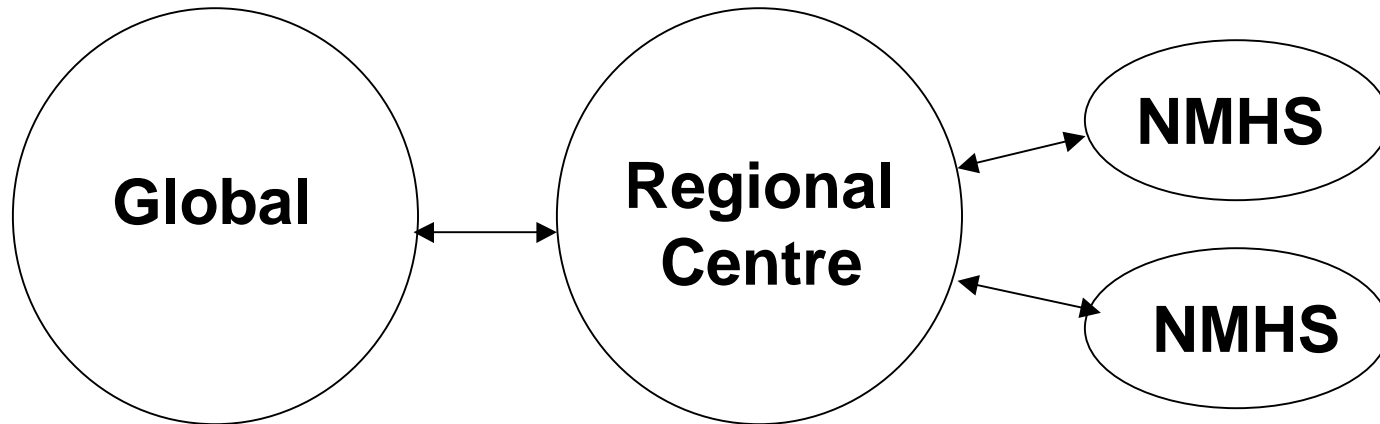


## Pacific Region GCOS Workshop (cont)

- In Planning the Strategy Towards a Pacific GCOS, Three Key Issues Were Identified:
- ***National Climate Monitoring Plans:*** For Maximum Regional Impact Each National Plan Should Set Out National Capabilities and Needs Within a Regional Framework.
- ***Network Upgrade and Operation and Maintenance of Climate Monitoring Systems:*** Coordinated Funding Assistance for Upgrading Networks Relevant to the Distinct Needs of Monitoring Climate.
- ***Climate Data Management:*** All Aspects of Climate Data Mgmt (e.g., collection, archival and utilization) for National, Regional, and Global Purposes Need to be Improved. Routine Reporting of CLIMAT Messages from GSN Sites and the Provision of Historical Data to NCDC are Essential Requirements.



# **A Schematic Representation of the Role of a Regional Climate Centre for Data Management and Information Flow**



## **Benefits of a Regional Approach to Data Management:**

- **Limited Comms Between World Data Centers and Each NMHS**
- **Identify Non-Reporting Stations and Facilitate Technical Support**
- **Recommend Corrective Actions**
- **Facilitate Information Flow from Global Centres**
- **Provide a Range of Integrated Products for Regional Use**
- **Provide a Shared Central Resource for Regional Climate Data Mgmt**
- **Serve as a Conduit for Distributing Regional Data to World Centres and Integrating Global Products for Regional Use**

# Contact Information

**Howard J. Diamond, E/EIS**

**U.S. GCOS National Coordinator**

**NOAA/NESDIS/EIS Program Office**

**1335 East-West Highway, Room 7214**

**Silver Spring, MD 20910**

**E-mail: [howard.diamond@noaa.gov](mailto:howard.diamond@noaa.gov)**

**Voice: 1-301-713-1283 (extension 229 for voice mail)**

**Fax: 1-301-713-0819**

