

NOAA's National Climatic Data Center



NOAA Air Quality Forecaster Focus Group Workshop

September 18 - 19 2007



National Climatic Data Center (NCDC)

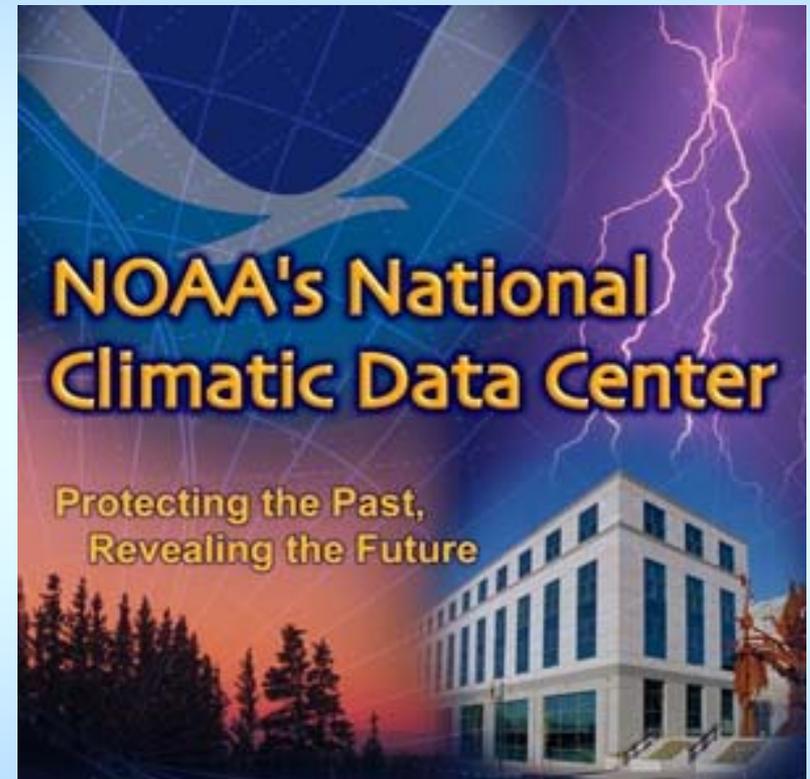
Asheville, North Carolina

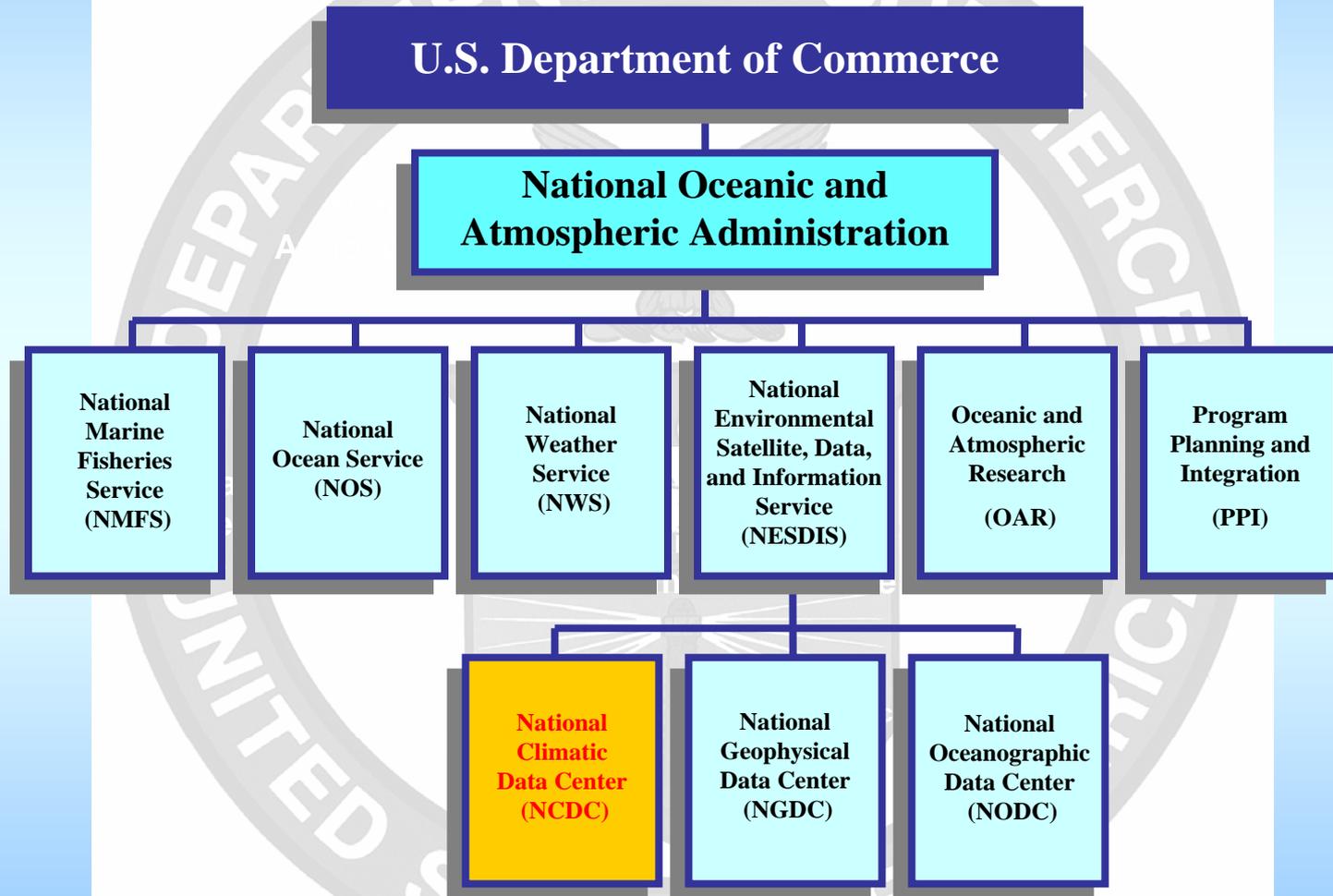
- NCDC is the steward of the Nation's in-situ and satellite data and information.
- Collocated with the U.S. Air Force and Navy Climatology offices.
- The three agencies fulfill much of the Nation's climate data & information requirements.



Mission Statement

To provide access and stewardship to the Nation's resource of global climate and weather related data and information, and assess and monitor climate variation and change.





Climate Goal: Understand climate variability and change to enhance society's ability to plan and respond

- Acquire / Ingest
- Archive
- Standards
- Access
- Certify
- Quality Control
- Analyze

STATE & REGIONAL PARTNERS

- State Climatologists
- Regional Climate Centers

NATIONAL PARTNERS

- NASA
- DOD
- EPA
- USDA
- DOE
- DOS
- DOT / FAA
- NSF
- DOI / USGS

INTERNATIONAL PARTNERS

- WMO
- ICSU
- WDC
- Bilateral agreements
- IPCC
- UNESCO

NCDC

Climate Information / Reference Data Bases / Access / Monitor





CONSULTING METEOROLOGIST *Provide testimony in court*



LEGAL *Certified evidence in court cases*



INSURANCE INDUSTRY *Rate determination & claims settlement*



INDIVIDUAL *Recreation, retirement, entertainment, vacations*



ENGINEERING *Provide guidance in the design and construction of facilities / infrastructure*



BUSINESS *Sales impact, site relocation, environmental impacts*



NOAA / GOVERNMENT *Research, investigations, legal claims, risk management, policy guidance / support*



RESEARCH *Environmental issues, science studies, weather, prediction*

Archive, Access, and Assessment

Highlights: 2006

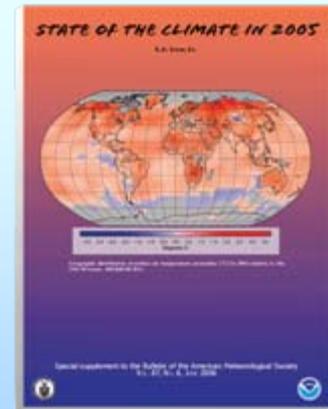
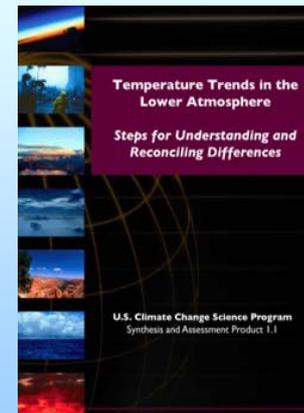
Safe Storage of more than 2,100 terabytes of climate data

- 120 terabytes of data added to the archive in 2006
- 25 terabytes of data delivered monthly to customers via web and ~ 4 million unique user hosts in 2006
- Production/distribution of 5 monthly serial climate publications to more than 100K users

Web Access Growth: Comparison		
	Jan 06	Jan 07
Web Hits	17.6 M	34.0 M
Peak Load (mid afternoon)	35,500 hits/hour	80,600 hits/hour

Critical Scientific Assessments

- Climate Change Science Program (CCSP) Assessments
- Weekly/Monthly/Annual “State of the Climate” Reports
- International Panel on Climate Change report



Mandated Functions of NCDC's Mission

1

Acquire and Ingest data



2

Archive and scientific stewardship of the Nation's meteorological data - national & international

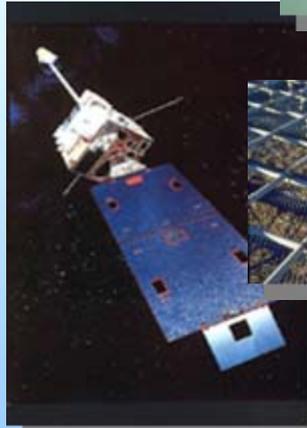
3

Provide access to data, metadata, and products

4

Monitor & describe the national & global climate

Data Received From Many Sources



Forecast Warning Analysis

NWS Coop Observers

Global Synoptic Reports

NCEP Charts

Ship, Buoy Reports

Rocketsonde

Radiosonde

Storm Data

Doppler Radar

(GOES, POES, NPOESS, many other) Satellites

Aircraft

Profiler

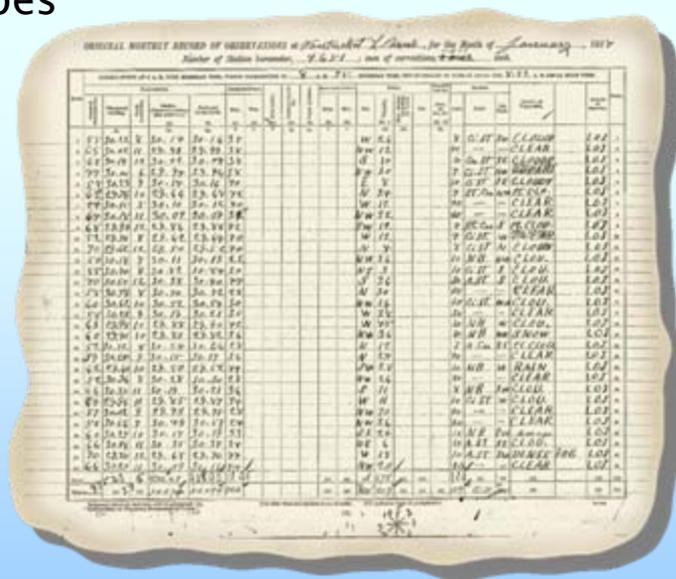
ASOS

USCRN

Data Received on Many Types of Media

✓ Digitally (Now majority of data ingested)

- NWS Cooperative Observer Data & Hourly Precipitation Data
 - Original manuscripts, Punched paper tapes
- Small amount of data
 - Analyzed charts
 - Original manuscripts
 - Autographic charts & rolls



Mandated Functions of NCDC's Mission

- 1 Acquire & Ingest data
- 2 **Archive and scientific stewardship of the Nation's meteorological data – national and international**
- 3 Provide access to data, metadata, and products
- 4 Monitor & describe the national & global climate

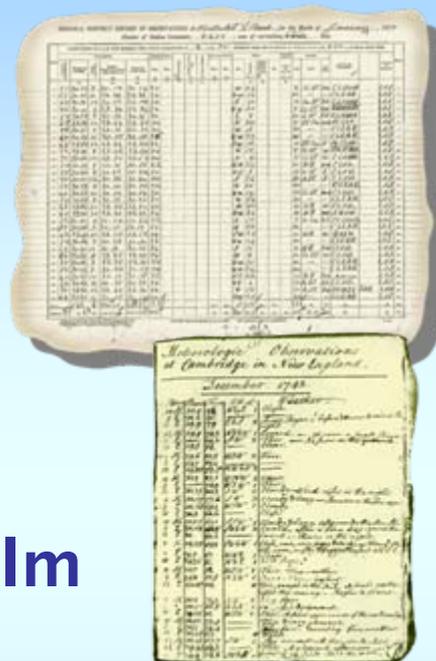


Non-Digital Data Archive

Manuscript / Autograph*

100 Million Pages stored in 125K boxes

* Located at Asheville; additional paper records located at the Federal Records Center in Georgia that will be inventoried and prioritized for digitization



Percent digitized
(Keyed or imaged)

50%
(50 million)

1.7%
(2,105 reels)

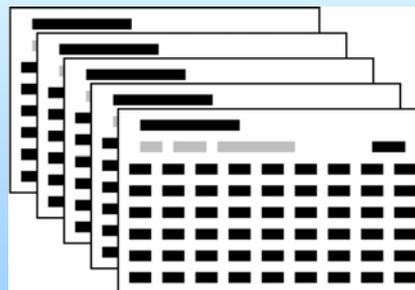
1.0%
(8,600 fiche)

35mm & 16mm Film

125,129 Rolls

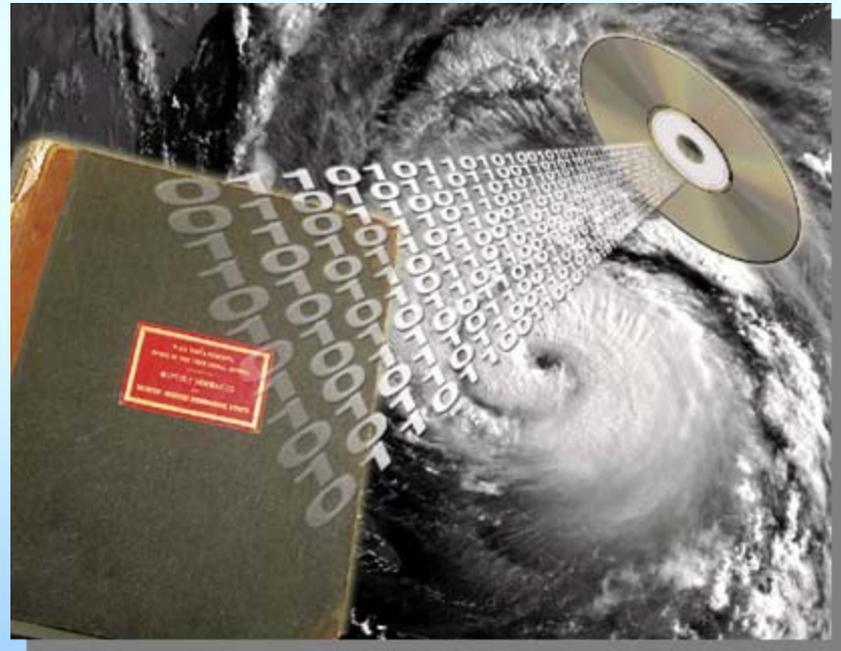
Microfiche

860K fiche containing
51 million pages



Mandated Functions of NCDC's Mission

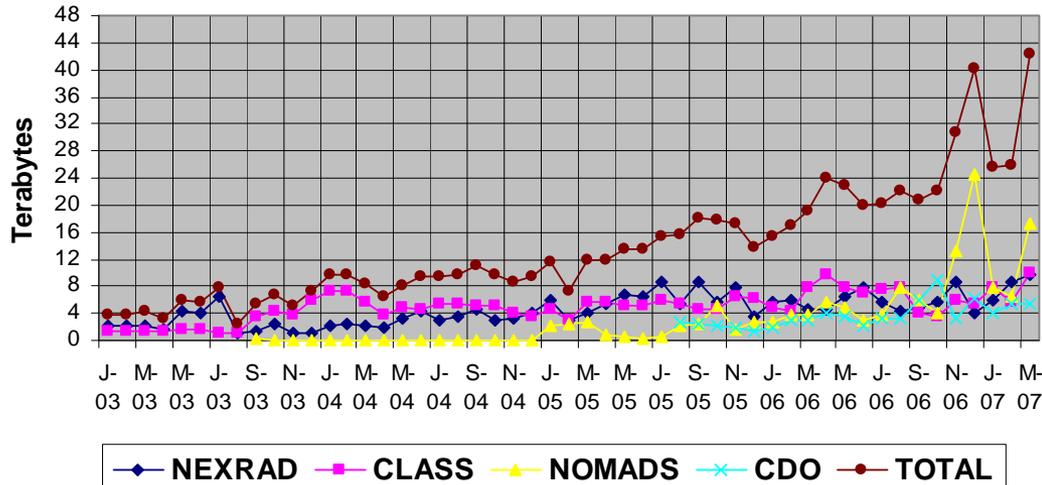
- 1 Acquire & Ingest data
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- 4 Monitor & describe the national & global climate



Climate Data Open Access

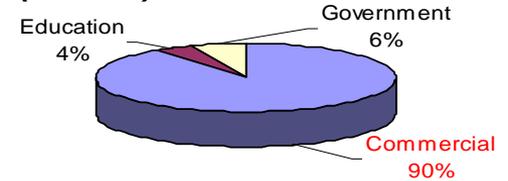
Respects WMO Resolution #40

Data Delivered to Users each Month - NCDC

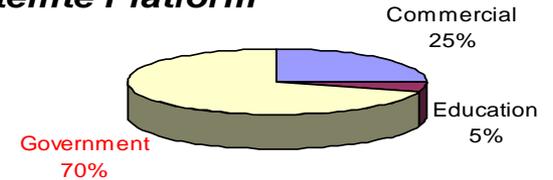


NEXRAD= Radar **CLASS** =Currently Satellite
NOMADS= Models **CDO** = Climate In-Situ

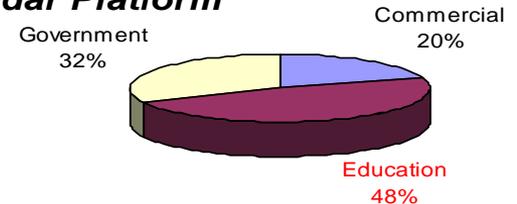
Earth (In-Situ) Platform



Satellite Platform



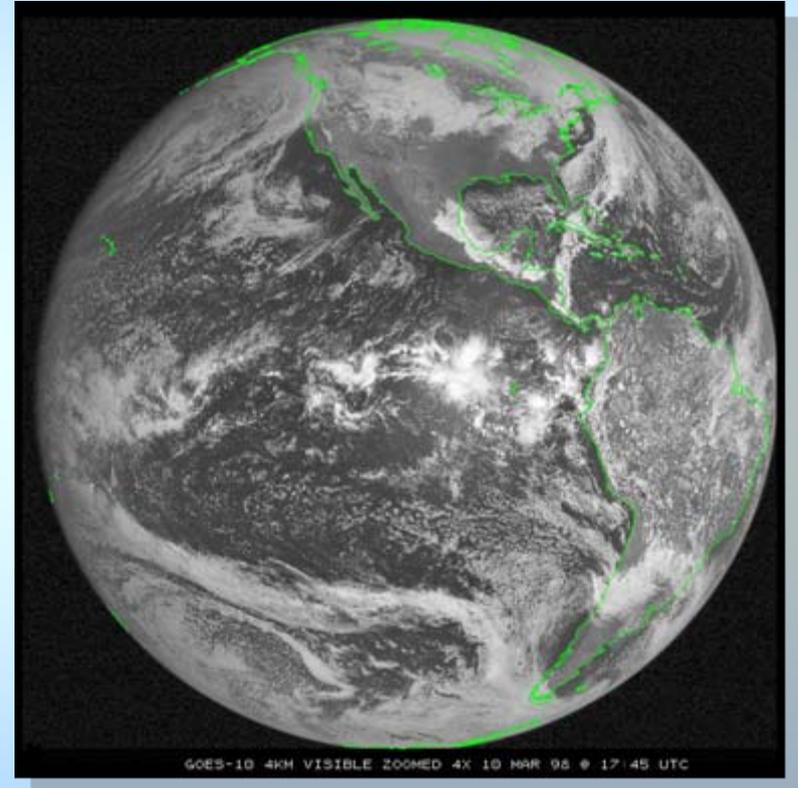
Radar Platform



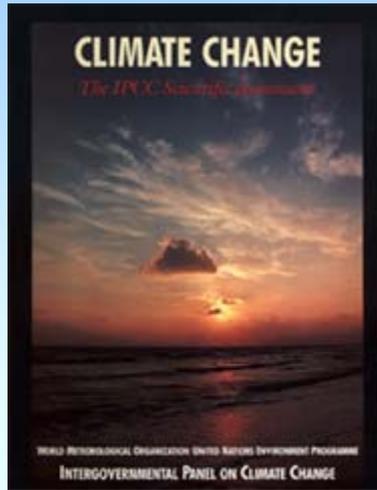
Climate data access by user type

Mandated Functions of NCDC's Mission

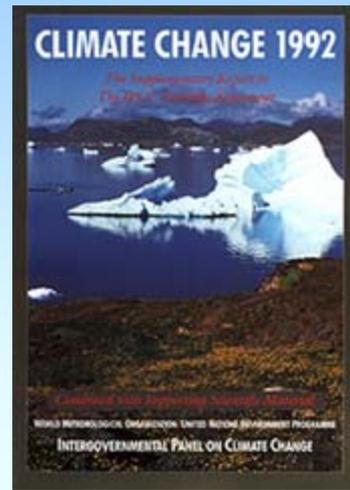
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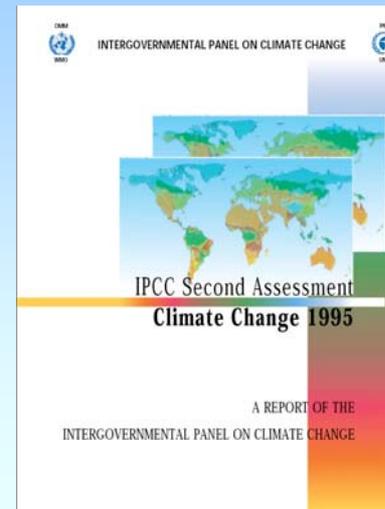
Examples of Climate Assessments



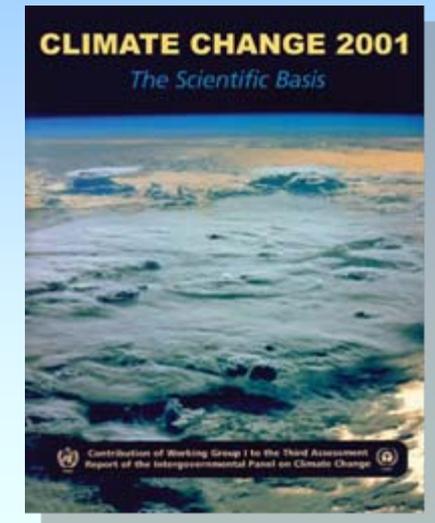
1990



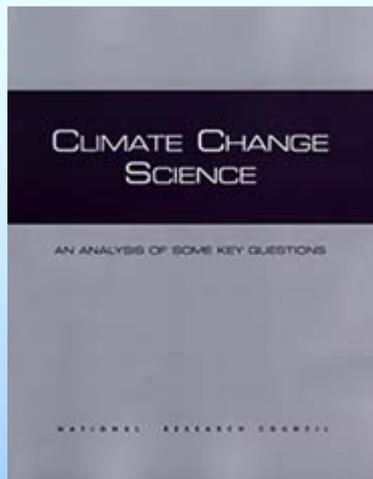
1992



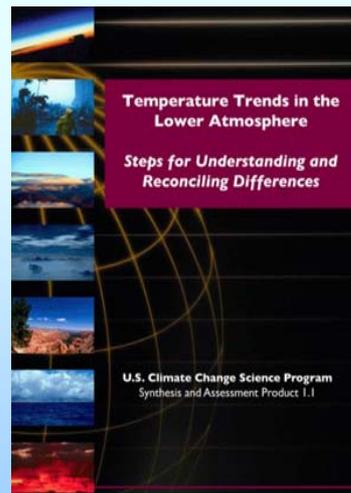
1995



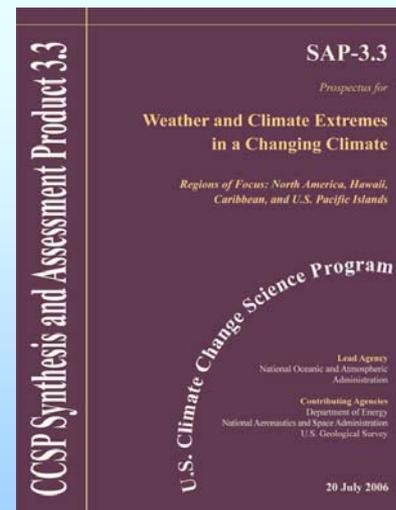
2001



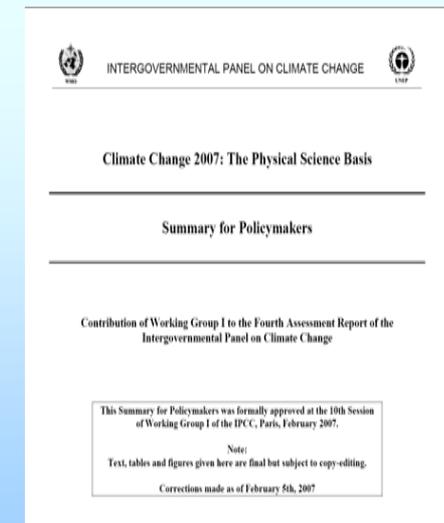
2001



2006



2007



2007



Monitor and Describe the Climate

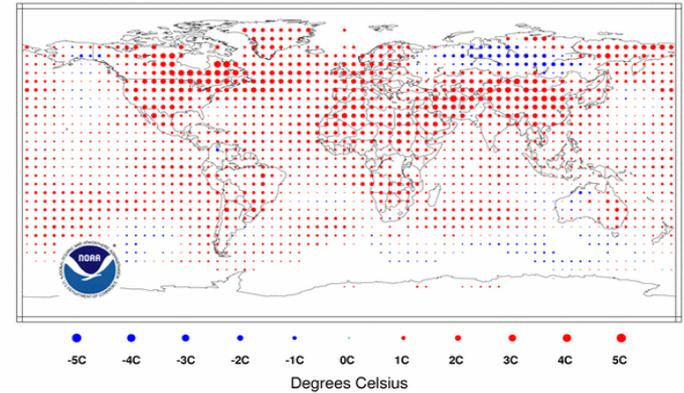
Climate Monitoring Web Access (Examples Highlight the Global Products Page)

The screenshot shows the NOAA Satellite and Information Service (NESDIS) website. At the top, it features the NOAA logo and the text "NOAA Satellite and Information Service National Environmental Satellite, Data, and Information Service (NESDIS)" and "National Climatic Data Center U.S. Department of Commerce". A notice states: "Notice: Some online systems are experiencing problems due to heavy load on servers." Below this is a navigation bar with "DOC > NOAA > NESDIS > NCDC" and a search field labeled "Search Field:" with a "Search NCDC" button. The main content area is titled "NCDC Climate Monitoring Reports and Products". On the left, there are several menu categories: "Current Events" (About NCDC, Newsletter/Reports, In the Spotlight, What's New), "Data & Products" (Start Here..., Search by Map, Data & Products, Free Data, Data Access tools, CD-ROM Products, Find a Station, Help/FAQ), "Purchase" (Most Popular, Subscriptions, Order Status, Online Store), and "Climate Info." (Research, Monitoring, Extremes, Global Hazards). On the right, a list of products is shown with arrows pointing to the right: "State of the Climate", "BAMS Annual State of the Climate Reports", "U.S. Products", "Download U.S. Temp/Prcp/Drought Data", "U.S. and Global Extremes", "Global Products", "Tropical Cyclones", "Tornadoes", "Climate and Network Monitoring", "Drought Monitoring", "Snow Data", and "Other Products". A large green arrow points from the "Climate and Network Monitoring" link to the right.

Jan-Dec 2006 Temperature Anomalies

(with respect to a 1961-1990 base period)

National Climatic Data Center/NESDIS/NOAA



Jan-Dec Global Surface Mean Temp Anomalies

NCDC/NESDIS/NOAA (Smith and Reynolds, 2005)

