

NOAA's Climate Database Modernization Program- Data Rescue Activities







Program Manager- Tom Ross- ECIP Federation Talk









Climate Data Base Modernization *Outcomes & Benefits to the Nation*



Outcomes

 Improved access and digital conversion of data stored on aging paper, film & obsolete digital media
 Provides partnerships and jobs through private sector companies in 4 states- 300 + jobs

Benefits to the Nation

Human Dimension: Reduced loss of life & impacts due to environmental events

Business Dimension: Enhanced opportunities and socio-economic gains by considering climate information in decisions

Policy Dimension: More effective government policy by appropriately using climate information in decisions



Tenth anniversary of the program (began 2000)



Data Received From Many Sources









National Climatic

Data Center - 31

Oceanic and Atmospheric Research - 4

Over 11 terabytes of climate data now digitized

- 53 million weather and environmental images online
- Hundreds of millions of records digitized now online
- International data access and rescue activities
- 86 current NOAA climate/environmental rescue projects

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July 1st, 1842 hourly weather data from Washington, DC, imaged and digitized through the CDMP Program

Keying and Imaging the data increases data accessibility and data integration- Work must be done by CDMP contractors in KY, MD, WV



National Oceanographic Data Center - 6 National Marine Fisheries Service - 11 Data Center - 12

Imaged Records Example: Glacial Pairs – Muir Glacier, Alaska

National Ocean

Service - 18



NCDC Non-Digital Data Archive





Manuscript / Autograph*

103 Million Pages stored in 120,000 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

1.7% (2,105 reels)



Microfiche

860K fiche containing 51 million pages

125,129 Rolls











Climate Database Modernization Program (CDMP) Surface Airways Observations

SAO observations keyed through CDMP and added to NCDC's Integrated Surface Hourly (ISH) database:

405.6 Million New Observations Keyed and Archived by the end of 2010

placement, global re-analyses for climate trends assessment, HAZMAT operations and studies (oil spills, toxic release), weather risk



Surface airways meteorological data are being used for: engineering design (ice loads for towers, cables wires, wind loads for buildings, heating/cooling requirements, drainage/runoff extremes) aircraft operations (runway design), ship routing and oil rig management industry, insurance investigations and verification, court cases and criminal investigations, aircraft accident investigations, wind energy studies, commercial innovation and design, and tourism support.

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Data Period 1928-1948 261 New Hourly Stations Added





Weather instruments on the roof of the Wold-Chamberlain Field Administration Building around 1945 (Courtesy of the Minnesota Historical Society, Photograph Collection). Left photo: Ms. Lucille Sjostrom checking temperature and dew point sensors in the while shelter and the rain gage at far right while planes are taking off. Right photo: Ms. Sjostrom calculating cloud heights by using the roottop cellometer. Before the celometer was installed in 1945, cloud heights had to be determined by launching weather balloons

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Data Period1965-1981 292 Hourly Stations Updated



National Weather Service at Greenville-Spartanburg AP

The National Weather Service in Lander, WY (1906)





SWO estimated completion date: 2017 COOP Fiche estimated completion date: 2016

ATMOSE

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The CDMP "Forts" project is extending daily data records from the beginning of the Weather Bureau era (circa 1892) as far back as the 1780's. Close to 350 stations' data have already been keyed. CDMP's Forts team will prepare approximately 75 more stations for keying in the upcoming year.





Through NOAA's CDMP, historic Signal Service, Smithsonian, and other weather observations from the 18th and 19th centuries are being saved.

CDMP has partnered with the Midwestern Regional Climate Center and contractor SourceCorp to key data from images of original forms into a digital format.



Forts will extend the climate records in NOAA's digital database to the beginning of our Nation's history.





The keyed data for all the CDMP Forts stations are available online through the Midwestern Regional Climate Center (MRCC). In addition, close to 100 stations' data have passed QC tests applied at MRCC. These data are available from NCDC via an FTP download.



Climate Database Modernization Program (CDMP) **Sailing Ahead with Historical Marine Observations**



Total obs provided by CDMP to ICOADS since 2007 (~2.1 million) and future CDMP projects to fill gaps







The East Indiaman Warley (1795), as depicted by Robert Salmon . Courtesy of the National Maritime Museum, London,

English East India Company Logbooks Period of Record: 1790-1834 285K Observations Digitization goal: 2009

Current Rescue Projects:

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US Coast Guard





R.M.S. Laconia (1912) . courtesv of the Steamship Historical Society of America, Inc.



Pollock Rip Lightship LV 114,











stations total of will

34 of 95 Observatories keyed (29 different formats) -35 coop stations yet to be keyed. Total keying of 13.1 million daily observations (430,000 forms) should be completed by 2012

- approximately 1/3 of the data has been keyed. Data will used in international North American Drought monitoring activities with Canada and Mexico.

Hourly data for 16 stations in the 1950-1954 period. Data will be incorporated into ISD

be incorporated into GHCN

The Foreign Data Library (FDL)

The best index we have for our "vast unknown" of foreign data:

Table 16

Detailed Listing of Unfilmed Foreign Data Publications Archived in ASB for Published Dates Prior to Mid-1975 and Costs for Producing Archival Quality Film from These Publications

Main Geographic Area				Cost	
Covered by Publications	Period	Pages	Volume	BSHR & PC	TDC
World	1841-1973	219,000	24.3	10,950	6,570
Tropic	1937-1970	14,400	1.6	720	432
Hemisphere	1743-1974	172,800	19.2	8,640	5,184
Oceans & Water Bodies	1648-1974	563,400	62.6	28,170	16,902
Europe Aisa	1797-1973	159,600	17.7	7,980	4,788
British Isles	1845-1975	939,300	101.0	46,965	28,179
Germany	1750-1975	1,382,700	153.6	69,135	41,481
Philippines	1348-1975	924,900	102.8	46,245	27,747
Sunda islands	1866-1974	117,600	13.1	5,880	3,528
General Australasia	1900-1969	7,200	0.8	360	216
New Zealand	1853-1975	400,200	44.5	20,010	12,006
Australia	1770-1974	351,000	39.0	17,550	10,530
New Guinea	1914-1964	5,700	0.6	285	171
Polynesia/Micronesia	1911-1975	223,500	24.8	11,175	6,705
Polar Regions	1873-1972	194,400	21.6	9,720	5,832
Unprocessed/Noncatalogued	Varies	750,000	83.3	37,500	22,500
TOTALS	1348-1975	25,216,000	2796.7	\$1,260,800	\$756,480



2071 number of boxes of data in the FDL

CDMP multi-year project to inventory data suitable for keying in GHCN daily and monthly, IGRA upper air and ISD surface

Web interface inventory will be developed after inventory Is complete



Climate Service Publications **Radar Summary** (from 1956)-40,304 reels 24-hour Precipitation **Snow Cover** Surface/Upper Air **Hemispheric Constant Pressure** Thermographs Barograms Wind Gust Recorder Charts Satellite Imagery-1300 boxes of raw images 1964-1990









4 NWS International Activities

Typical Camera and Imaging Setup for International Projects



A technical leader responsible for each step in the process at each international location is critical ! High tech digital cameras and camera stands are set up in a well lit environment- sponsored by NOAA/NWS

Technicians are trained to image the records using the camera equipment they check for quality, exposure and completeness

Digital jpeg images are stored in the camera's hard drive then transferred to the computer

Images on the computer are then written to CD-ROM or DVD and sent to NCDC for storage and keying

Keying format developed at NCDC based on data captured from host country

Data must be keyed in U.S. by CDMP contractors

End to end process can take 1-3 years depending on complexity and amount of data to be imaged/keyed



CDMP African Projects



Over 150,000 images of pibal (upper air wind) records from the 1940's to 2003 received to date from 7 African countries (Kenya, Malawi, Mozambique, Niger, Senegal, Tanzania and Zambia)

- Most data has been keyed and after passing quality control checks will be entered into NOAA's global upper air database (IGRA)
- Digital data files were provided to the host countries that imaged the data. Keyed data files also hyperlinked to the actual images providing an easy access to the original record
- A small amount of pibal data remains to be keyed for Zambia and Mozambique- finished by mid 2009
- Ongoing tasks with Tanzania and Mozambique may expand to surface data in 2009
- Martin Munkhondya in Malawi is the technical leader responsible for training and follow through visits at these international locations
- NWS and IEDRO (non profit) provides some technical, administrative and logistical support

Possible Namibia and ACMAD Microfiche Recovery Project





Making Data User Friendly and Accessible



The index on the CD-ROM will be the main point for searching for related data.

The index page provides links to all available data types (both images of recorded data and actual keyed data) associated with the CD-ROM

•	Statio	on:67423	Da	y/Mo/Y	ear Tin	ne:07/1	1/1970 04	4Z
•	Keye	d Image I	D: CDMP	06MA\	MA000	1\ 0009.	jpg	
•	Sour	ce Image	ID: .\MA0	001\1\F	°61600	06.jpg		
•								
•			CO	MPUTE	D	OBSER	VED	
•	TIME	HGHT	Azimuth	Elev	DIR	SPD	DIR S	PD
	MIN	S FEET	DEG	DEG	DEG	KTS	DEG	KTS
•	> 0	0					130.0	5.0
•	1	500	327.2	21.2	147	13	0	0
•	2	1000	337.9	22.4	170	12	0	0
•	3	1500	239.7	24.9	165	8	0	0
•	4	2000	342.7	26.1	174	9	0	0
•	5	2500	337.4	25.5	140	12	0	0
•	Note:	> Marks	the Begin	ning of	each F	Record i	n the Lau	inch

Station Number	Date	Time	Table	Dir/Spd	Raw Data	Image
67423	11/07/1970	0400	<u>Table</u>	Dir/Spd	Raw Data	Image
67423	12/21/1979	0400	<u>Table</u>	Dir/Spd	<u>Raw Data</u>	Image
67423	12/22/1979	0400	<u>Table</u>	Dir/Spd	<u>Raw Data</u>	Image
67423	12/24/1979	0400	<u>Table</u>	Dir/Spd	<u>Raw Data</u>	Image
67423	12/27/1979	0400	<u>Table</u>	Dir/Spd	<u>Raw Data</u>	Image
67423	12/29/1979	0400	<u>Table</u>	Dir/Spd	<u>Raw Data</u>	Image
67423	12/30/1979	0400	Table	Dir/Spd	Raw Data	Image



The highlighted .jpg has a link connecting it to the original image from which the data was keyed

Time c	of Stare	0001 041	GMT R	ate of As	100 JA:	500 ft./	Wind /	an/est	Free LifeWe	other c	
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-			0/140		_		10	12 12 12	al Tio	Per line	



The data above is an upper air pibal, due to the limited wind data available a keying format was developed to key the azimuth/elevation data along with the surface wind data, found in the header section. The wind data, to the middle right of the image, we found, was often determined by the average of multiple levels of wind data.





International Activities

• WWII Royal Navy Ship logs from 1938-1947 were microfilmed and scanned at the British National Archives. The records have been keyed by CDMP and will be QA/QC'd then merged into the International Comprehensive Ocean Atmosphere Data Set (ICOADS).

•Expanded to East India Company Logbooks in 2008- Joint UK Met Office Project







Major NOAA Projects Sponsored by CDMP

National Climatic Data Center

Hourly Surface Observations: imaging and keying Daily Cooperative Observations: imaging and keying Upper-Air Observations: imaging and keying Signal Service/Smithsonian Obs ("Forts"): keying Hourly Precipitation Data: imaging and keying Integrated inventory system development

Marine observations: keying

Mexican Daily/Hourly Data: imaging and keying Vietnamese Daily/Hourly Data: keying

Monthly Weather Review: searchable indexing Snotel Data: keying East India Company Data: keying Station History & Metadata development

Subscription Services

National Geophysical Data Center

Defense Meteorological Satellite Program film: imaging Glacier Photos: imaging Marine Geophysical Records: imaging and keying Ionospheric Observations – keying Historical Solar and Spectral Observations: imaging Tsunami Event Gauge Records: imaging and keying Historic International Polar Year: imaging Marine/Lacustrine Record of Climate Change: Heat Mapping Mission Data: Historic Cosmic Ray Ionization Chamber Data Historical International Polar Year: imaging

National Oceanographic Data Center

NOAA Library Rare Climate Publications: imaging Lightship data: Sweden & Finland NOAA 200th Anniversary Film Transfer: imaging California Marine Ecosystems Survey: imaging

National Marine Fisheries Service

Lightship Observations: imaging and keying Data Recovery on Cetaceans: imaging and keying Fish egg & larvae: keying: REEF: optical scanning Magnetic Tape recovery ;Historical plankton: keying Historical Fish Landing Data: keying Historic Bering Sea Crab Data: imaging and keying Oral History Interviews: transcription and digitizing Turtle Exclusion Data: imaging and keying

National Ocean Service

Shoreline Charts: vectorizing Nautical Charts: imaging Thunder Bay Historical Collections: imaging and keying California Marine Ecosystem Survey: imaging and keying Historical Maps and Nautical Charts: geolocation Historic Environmental Sensitivity Maps: imaging Fish Commission Historical Papers/Logbooks: imaging, keying High/Low Water Level at NOS Sites: imaging, indexing, keying Special Reports for Geographic Names: imaging Historical Aerial Photography: imaging

National Weather Service

African Upper-Air Observations (Seven Nations): keying Surface data from Tanzania, Mozambique: imaging and keying Atlantic/Pacific tropical cyclone "storm wallets": imaging

Office of Oceanic and Atmospheric Research

U.S. Navy Weather Station Index Books – keying Hurricane Reconnaissance: imaging & streaming video European historical ship logbooks: imaging and keying U.S. Regional Climate Centers Database Conversion and Quality Control





Highlights/Past Successes

2009 Major NOAA CDMP Data Recovery Tasks

18 NOS tasks



High-altitude aerial photography, Hudson River, NY.



Highlighted tasks: Image nautical charts & historical coast pilots, vectorize and geo-reference shoreline charts, and image and key water level gauge records and environmental sensitivity maps, water and tide level data, fishery management and catch tracking tasks

Same area on a NOAA nautical chart. Comparing these sources, created at different times, provides information on the rate of change in the coastal zone, which aids in the design of coastal zone mapping projects.





Highlights/Past Successes

2009 Major NOAA CDMP Data Recovery Tasks

5 NODC Tasks







Rescue 3 collections of ecosystem surveys along California coast
 Beach Watch Program

- Common Murre Restoration Project
- California Kelp Resources Project
- Scan ~110K survey slides and log sheets

Highlighted tasks: include California marine ecosystem surveys, NODC metadata, NOAA library and film transfer projects and plankton database research and rescue projects.





Browns Calab
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The BIOLOG

The NOAA Central Library National Oceanographic Data Center

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National Environmental Satellite, Data, and Information Service National Oceanic and Atmospheric Administration





Highlights/Past Successes

2009 Major NOAA CDMP Data Recovery Tasks

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2	124	12.3	103	20.0	113	27.3	2.0,6	6.6	4+1	\$3.7	216	24,6	23,2	2/0	287	203	21.4	20.7	618	20.6	227	21.Y	3/6	66.7	22,2	11	60	*	229	76	120	17.2	185	100	17.
	11.2	1.0	22	3.71	109	27.7	204	7.6	962	29.7	20	24.8	25	31.1	238	1200	21.6	2/0	626	2.07	72.0	28.9	29%	681	22.1	90	20	20	233	70	17.7	19.0	11/	103	17
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	105	11	15	301	100	123	214	11	1994	244	1.77	259	221	3/10	447	191	1.8	20.2	130	\$10	409	29.1	220	107	222	17	20	11	226	39	106	100	142	594	1.9
-,	mil	ind	12	290	93	1936	103	29	23	72.3	471	414	221	1.1.1	010	2.9.7		242	129	212	136	17.7	a 14	7	121	12	42	87	776	24	111	109	102	602	20
	106	11	92	300	102	234	212	62	416	243	22.5	244	225	173	242	246	218	714	428	213	220	210	720	190	783	14	66	31	231	22	103	198	mil	199	10
9	112	112	14	208	103	231	216	60	492	246	228	741	28.9	278	943	2.00	200	211	119	217	24.6	944	228	320	747	11	23	10	241	20	-108	208	203	61.9	20
. 16	107	ned.	16	29.7	9.9	28.1	218	43	499	250	226	24.9	242	23.2	246	208	228	218	654	218	794	250	245	329	28.7	11	31	81	232	29	200	211	208	61.9	20
A DECADA	1136	46	919	3200	106.3	235	2462	640	487.6	24/3	2183	24.04	23/2	2119	4887	min	2123	2,000	13.94	2109	2202	2923	23/2	1912	23/3	1239	197	202	2763	3.88	1977	1927	1991	1915	193
11	10.4	105	9.0	301	100	286	20.2	21	494	247	22.7	220	343	340	247	2/2	771	219	1.5.9	220	242	749	247	2.78	246	11	20	81	229	80	205	211	209	62.6	20
12	10,6	11.7	9.4	31.7	10.6	212	22.2	6.6	\$10	255	22.1	2.29	242	24.8	249	214	252	218	44	221	24.6	203	246	344	248	11	48	11	237	29	20.8	213	208	62.9	21
13	123	nt,	N.5	349	11.6	278	208	20	486	243	215	24,8	2%	23,0	24.3	2/2	226	-212	45.0	21.7	24.9	246	321	723	241	91	70	эĻ	842	81	111	208	19.6	61.5	20
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18	14	12.3	12	349	116	217	213	65	50.7	255	221	2.76	240	7444	24.8	218	229	214	660	220	25%	244	238	72.8	246	92	46	10	231	79	214	203	20.3	125	20
10	122	130	110	36.2	12.1	285	28.9	5.6	189	2.5.3	274	264	244	944	2.4-8	214	227	2/6	657	219	242	25.1	738	37.1	24.4	N	73	77	23/	78	2.05	311	203	61.9	26
17	13.0	10.7	10.8	322,	12.6	287	219	20	100	2.57	28,6	274	240	745	241	112	234	22,0	66,6	222	240	26.1	248	361	250	17	11	11	241	80	206	2/3	209	63.5	21
18	13.2	131	12	384	140	212	216	13	100	253	224	241	24.7	73.7	24.6	210	72.4	1/8	65.2	21.7	239	24.2	21-2	723	2.Y-1	81	64	22	234	78	20%	103	205	61.4	20
10	1.0	10	121	22.4	11.4	210	372	6.0	100	23.6	27.7	271	2440	251	210,	201	276	112	645	2/1	23.0	240	230	200	23.3	12	690	10	724	24	197	209	197	v 7.5	112
SUMA.	list	12.1	7.7	27.1	110	111	2.7.4	()./	470	29.4	72.0	264	24-1	1.12	24. y.	202	2/8	21.6	63,2	215	22,9	230	220	472	22.7	15	60	23	2.29	200	17.7	111	19,00	4.7	17
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	10.5		15	201	16.2	140	17.0	1.0	44.0	6.2.7	100	241	79-5	139-	281	17.6	224	22.0	69.2	27.9	22.2	2400	24.7	111	23.7	17	*7	10	-11	17	17.0	202	1.1	int	100
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14	100	11	15	3/2	100	201	20.8	33	100	14.1	Call	216	288	320	111	2.02	22.2	002	111	220	141	A96	017	3.97	241	22	10	12	240	10	120	042	202	615	20
24	00	124	45	32.9	110	200	24	29	510	2.57	230	150	252	247	2.54	2.12	221	220	110	220	240	74.3	242	126	242	12	14	14	774	25	2ml	206	204	416	20
26	118	160	102	367	112	215	220	25	120	253	210	282	249	340	253	206	170	770	ind	491	Talal	144	244	326	245	11	44	51	229	26	202	258	708	423	20
27	111	125	24	330	110	256	227	64	101	254	229	2.80	252	261	250	210	226	121	157	219	276	271	245	219	2 40	87	43	34	272	34	201	103	208	612	20
28	100	1. A	16	294	98	274	2/2	2Z	496	24.8	270	276	248	30X	251	110	180	2/2	452	2/2	135	250	227	2/3	239	14	11	22	225	25	201	211	196	108	20
29	94	104	35	273	91	286	208	32	418	144	220	238	745	251	2.10	210	230	117	152	218	235	252	284	326	743	n	49	24	22.9	24	mi-	\$17	204	617	20
30	99	10.9	89	297	9.9	288	226	6.2	SIL	257	23.8	-128	248	344	255	216	297	224	627	226	243	24.5	115	243	25.4	re	4	11	234	28	200	221	214	635	21
31	10.6	12.5	10.0	329	110	276	22.0	5.6	4.96	248	23,2	76.6	244	34.2	242	222	237	224	490	227	261	241	24.2	374	261	92	24	16	212	14	211	417	319	655	21
DECADA	139,	3at	1012	1411	1152	3/27	272	801	JWG	272	10195	30%	2740	\$271	2757	23/6	25/6	2420	2252	24/2	2628	2715	2685	8028	26.80	918	733	755	546	847	7131	2296	2284	6811	22
TOTAL	40	482	2930	10,00	337/	1921	44.56	2/6.3	1527	743	4927	8359	24	12/11	202	64.70	6956 .	482	20/08	170%	343	7496	7408	2277	74	2722	2101	2432	720	2449	6255	\$ 7.56	6308	18919	162
MINULAL	108	1.9	96	376	10.9	281	211	20	49.2	246	27.3	270	243	736	245	20.9	Fist :	216	64.9	2/4	237	241	23.9	71.7	23.9	88	68	78	234	28	202	205	203	40	20
APECAM	134	N20	11.3	384	128	219	78,6	10.1	VI.F	25.7	238	286	251	220	757	22.2	23.7	226	610	227	26.1	26.5	24.2	784	261	98	84	16	258	94	218	221	21.9	155	21
MERMA	94	10.4	25	27.3	41	269	19.6	\$6	449	234	20.8	225	231	630	32.3	194	tob	20,2	608	203	215	2.12	21.6	66.6	22.2	12	58	73	222	7×	123	184	18.8 .	575	19
DECADA	14	15	12,	320	107	276	207	69	417	241	218	261	23.6	71.5	238	204	2/1	21,0	4 32	21.1	231;	192 -	29,2	695	232	18	69	20	276	79	118	19.9	11.9	596	19
	11 8	12 24	soul	2111	100	1.00.00.0	1 m 1 f 1 i			1.0.00	2.4.4.6	- A - A - A - A - A - A - A - A - A - A		(a) (a) (b)					1.000					14 C 1											

•Surface observations have been taken at Puerto Baquerizo Moreno (.9 S, 89.6 W) on Isla San Cristobal in Ecuador's Galapagos Islands since 1967. There are no stations within 1,000 km which regularly report surface data for this period. This station is located in the heart of the East Pacific Cold Tongue

Write a reference document for climate researchers to: Describe each of 25 prescribed daily mean formulas, discuss how and why the formulas varied, explain the rationale for those variances, compare them to the true daily mean, identify correction factors for each formula, determine spatial variations in the corrections. Investigate correction factors for each formula, determine spatial variations in the corrections

Image and key historic European ship logbooks, hurricane reconnaissance information, San Cristobal keying and various publications



DMSP Sample Film Scan









Glass Plate Scanning Project

Historical Solar Observations (L-16)

Scanning of the Naval Research Laboratory (NRL) Glass Plate Negatives from the Skylab Mission



The glass plate negatives as they aged were a dataset at risk. The images stored on glass plate negatives at the Naval Research Archives were not readily accessible to the public. The NRL working in partnership with NGDC and the NCDC Climate Database Modernization Program team have successfully modernized and provided wider access to this valuable dataset.





Glass Plate Scanning Project





The glass plate negatives are stored in customized cases at the NRL. NRL shipped the glass plate negatives to HOVS, in Beltsville MD, for digitization.



The scanning operator selects the glass plate negative for scanning. Prior to scanning, dust is removed with a blower brush and a lint free cloth.







Glass Plate Scanning Project

The scanner, borrowed from the NRL has been modified for the scanning of glass plates negatives with two parallel gold bars across the scanning platen.





Moire pattern effect



Newton's rings effect



The glass plate negative is placed on the parallel gold bars. The bars raise the negative off the platen, reducing the chance of adding moiré patterns or Newton's rings as artifacts to the scanned image.





Solar CDMP Proposed FY07 Work





Focus on completing high resolution research quality scans

Complete scanning of 67 years of daily solar H-alpha images on film – 24,000 images

NEW -- Scan 35 mm slides of historical NOAA Space Weather activities – about 300 NGDC slides from Helen Coffey for NOAA History website, to complement the SEC files.





Highlights/Past Successes

2009 Major NOAA CDMP Data Recovery Tasks

11 NMFS Tasks









Bycatch Reduction Engineering Program to "provide information and outreach...that will encourage adoption and use of technologies

Imaging and keying data on cetaceans , fish eggs/population, coral reefs, Bering sea crab data, lightship records and Turtle Exclusion data



Selected NOAA Projects Climate Database Modernization Program



Supports NOAA's Ecosystem and Climate goals Digitize 7,200 negatives of killer, minke whales and other mammals Scan 15,000 pages of notes Keypunch 3,000,000 characters

May expand into capturing 750 hours of audio tapes collected over 30 years.

Supports research into the decline of the southern killer whale populationclassified as depleted under the MMPA and could become listed under the ESA





Example of a messy page-Hawaiian Humpback Whale Sighting and Movement Data

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COPEPOD: a global plankton database of zooplankton and phytoplankton data sampled from around the world.



COASTAL & OCEANIC PLANKTON ECOLOGY, PRODUCTION & OBSERVATION DATABASE

National Marine Fisheries Service - Science & Technology - Marine Ecosystems Division





Electronic Hurricane Wallet Project



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GIS Data RSS S Help with Advisories	Aircraft Reco	onnaissance Archive	Central Pacific Hurricane History		

NHC Central Pacific is developing the same "Storm Wallet" archive **Tropical Cyclone 'Storm Wallet' Electronic Archive**

After the dissipation of every tropical cyclone occurring in the Atlantic and eastern north Pacific basins, all of the data and relevant materials related to that cyclone are collected by the NHC staff. The materials are placed in a "storm wallet" which currently takes the form of an expandable binder, or series of binders. These storm wallets have proven to be extremely useful in the post-analysis of many tropical cyclones, both near-term and in some cases, decades later.

The procedure for storing this data dates back to well before the routine use of computers in the office environment. In the Atlantic, the wallet series begins in 1958 and proceeds continuously through the present. In the eastern north Pacific, wallets begin in 1988, the year in which operational responsibility for that basin was assumed by NHC.

Selected NOAA Projects Climate Database Modernization Program



Hurricane Celia 1962- Hurricane Wallet Project







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Electronic Hurricane Wallet Project Hurricane Camille 1969



U.S. DEPARTMENT OF COMMERCE UNITED STATES GOVERNMENT WEATHER SCREAU Memorandum DATE: October 9, 1969 : Director, Southern Region In reply refer to: FROM : MIC, WBO, Galveston, Texas SUBJECT: Reported 70 foot Seas with Hurricane Carille At a recent oceanography meeting, Dr. James Sharp, secretary of Gulf Universities Research Corporation informed me that he had recieved a report of 70 foot seas in Camille. This information reached him from an offshore drilling employee, working with Gulf Measuring Project which is composed of several oil companies. The exact location is not available but was near the track of Carille in 100 plus feet of water. He feels more information will be forthcoming and if additional details become available I will pass along. hs reported the wave heights ranged from a minus 32 feet to a plus feet. They lost their wind equipment when the wind reached 100 knots. fain, I should emphasize this report has not been officially released but m thought I would pass along for your information.

BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN







CDMP Proposal Process – NOAA Working Together on Data Rescue and Recovery

Proposals judged against the following criteria:

- 1. Supports NOAA's Strategic Goals
- 2. Contribution to improved data access & rescue
- 3. Value to climate community
- 4 General merit to overall program
- 5. Cost effectiveness
- 6. Ease of digitization by the contractors

Call for Papers- Issued Each July Data Access Workshop – Held in November

59 Proposals were submitted and funded during FY 2009 –total of 86 NOAA projects – New Record !







CDMP History 2000-2009

