



Consolidated Observation Requirements List (CORL)

NOAA Program Observation Requirements Document (PORD)

**FINAL for Program Verification
Version 1.0**

FY 2011

Weather and Water Goal

**Local Forecasts and Warnings Program,
Weather Forecast Office/Storm Prediction
Center Subprogram
(WW-LFW_WFO/SPC)**

August 26, 2011¹

¹ PORD Document Date reflects date for publication of this [FINAL for Program Verification]
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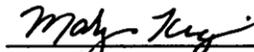
Signatures

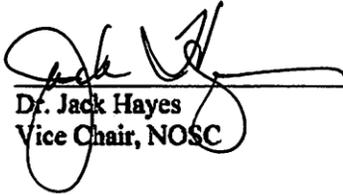
Observation Requirement Validation

NOSC Endorsement

The NOSC has received the Local Forecasts and Warnings Program's Observation Requirements with Goal Lead and Line Office concurrence, and is satisfied with the Level-of-Validation provided for the Priority-1 Requirements.

 <hr style="border: 0; border-top: 1px solid black;"/> Dr. Kathryn Sullivan Chair, NOSC	9/22/11 <hr style="border: 0; border-top: 1px solid black;"/> Date	Yes <hr style="border: 0; border-top: 1px solid black;"/> Endorsed
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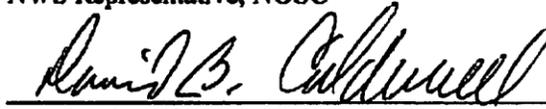
 <hr style="border: 0; border-top: 1px solid black;"/> Mary Kicza Vice Chair, NOSC	9/22/11 <hr style="border: 0; border-top: 1px solid black;"/> Date	Yes <hr style="border: 0; border-top: 1px solid black;"/> Endorsed
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 <hr style="border: 0; border-top: 1px solid black;"/> Dr. Jack Hayes Vice Chair, NOSC	10/4/11 <hr style="border: 0; border-top: 1px solid black;"/> Date	Yes <hr style="border: 0; border-top: 1px solid black;"/> Endorsed
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Line Office and NOSC Representative Concurrence

The Line Office and NOSC Representative concur with the Observation Requirements and are satisfied with the Level-of-Validation provided by the Priority-1 Requirements.

 <hr style="border: 0; border-top: 1px solid black;"/> Donald Berchoff Director NWS Office of Science & Technology NWS Representative, NOSC	9/22/11 <hr style="border: 0; border-top: 1px solid black;"/> Date	Yes <hr style="border: 0; border-top: 1px solid black;"/> Validated
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 <hr style="border: 0; border-top: 1px solid black;"/> David Caldwell Director NWS Office of Climate, Water and Weather Services	9/13/11 <hr style="border: 0; border-top: 1px solid black;"/> Date	Yes <hr style="border: 0; border-top: 1px solid black;"/> Validated
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Program Manager Validation

The Local Forecasts and Warnings Program Manager has validated the Priority-1 Observation Requirements by providing the Documentation listed in Appendix B as evidence of a substantiated basis for each of the five key attributes of those requirements.

 _____ Andrew Stern Senior Staff (former LFW Program Manager) NWS Office of Climate, Water and Weather Services	9/12/11 _____ Date	yes _____ Validated
--	--------------------------	---------------------------

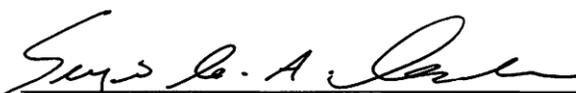
Observation Requirement Verification

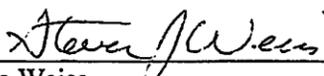
The Program Manager, with Program Membership concurrence, has verified that the Local Forecasts and Warnings Program's Observation Requirements, as documented in the CORL and reproduced in this document, comprise the Local Forecasts and Warnings Program's Threshold and Objective level requirements for environmental observations, and are ready for Validation.

Program Manager Verification

 _____ Andrew Stern Senior Staff (former LFW Program Manager) NWS Office of Climate, Water and Weather Services	9/12/11 _____ Date	yes _____ Verified
--	--------------------------	--------------------------

Program Membership Concurrence

 _____ Sergio Marsh	9/7/11 _____ Date	yes ✓ _____ Concurred
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 _____ Steve Weiss	9/2/11 _____ Date	yes ✓ _____ Concurred
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 _____ Phillip Bothwell	9/11/11 _____ Date	yes ✓ _____ Concurred
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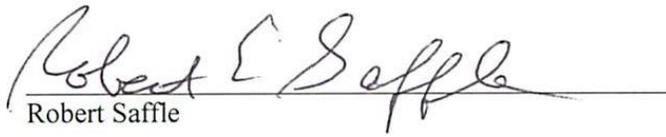
NOAA Program Observation Requirements Document (PORD)
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Jim O'Sullivan 9/12/2011 Yes
Date Concurred



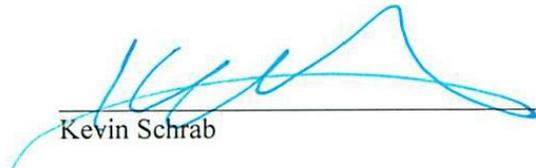
Richard May Sep 6, 2011 Yes
Date Concurred



Robert Saffle Sep 6, 2011 Yes
Date Concurred



Kevin Scharfenberg Sep. 7, 2011 Yes
Date Concurred



Kevin Schrab Sept 7, 2011 Yes
Date Concurred

Total Records: 31

2.1 Observation Requirements by Priority

The Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram's observation requirements are distributed among priority levels as follows:

- 31 = **Priority 1, Mission Critical:** Cannot meet operational mission objectives without this data.
- 0 = **Priority 2, Mission Optimal:** Data not critical but would provide significant improvement to operational capability.
- 0 = **Priority 3, Mission Enhancing:** Needed to enhance state of knowledge / assess potential for operational capability.

The following chart provides the distribution of the Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram's requirements by priority.

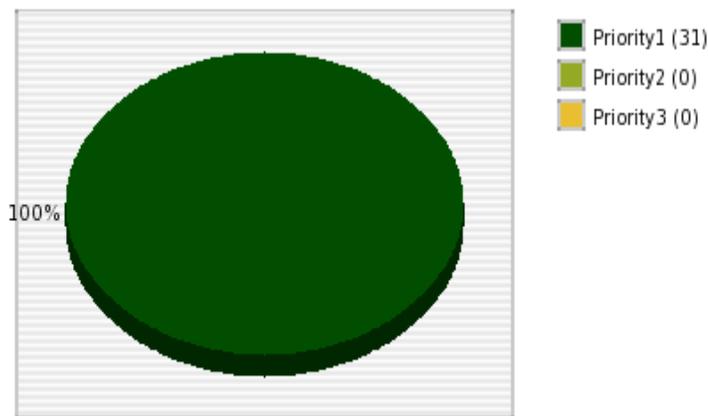


Figure 1: WW-LFW_WFO/SPC Observation Requirements by Priority (%)

2.2 Observation Requirements by Discipline

The Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram's observation requirements are distributed among environmental disciplines as follows:

- 23 = Atmosphere
- 0 = Biosphere
- 0 = Cryosphere
- 0 = Human Dimensions
- 0 = Terrestrial Hydrosphere
- 0 = Land Surface
- 5 = Oceans
- 0 = Solid Earth
- 3 = Spectral/Engineering

0 = Sun-earth Interactions

The following chart provides the distribution of the Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram's requirements by discipline.

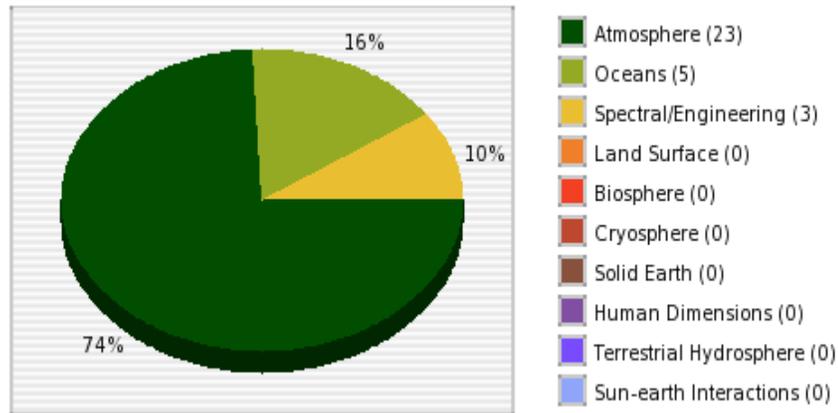


Figure 2: WW-LFW_WFO/SPC Observation Requirements by Discipline.

2.3 Observation Requirements by Type

The Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram's observation requirements are distributed among types as follows:

- 0 = Biological
- 0 = Chemical
- 31 = Physical
- 0 = Social
- 0 = Socio-economic
- 0 = Other

The following Chart gives the distribution of the Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram's requirements by type.

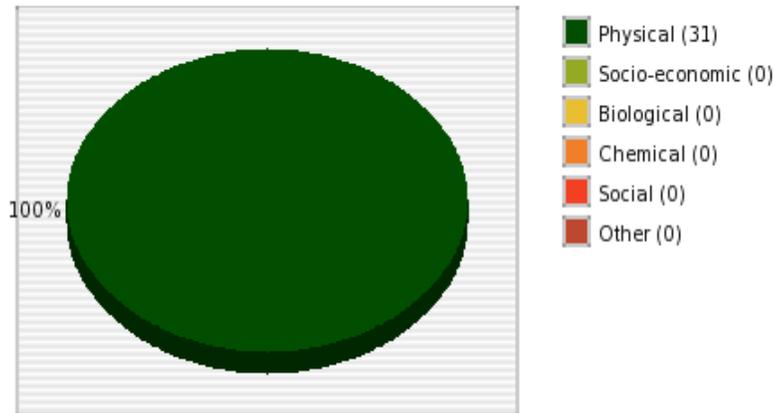


Figure 3: WW-LFW_WFO/SPC Observation Requirements by Type.

3. Observation Requirements Mapping to Performance Measures

Section to be completed in future version of the LFW_WFO/SPC PORD.

4. Status of Program List

As shown in Appendix A, each NOAA Observation Requirement is further specified by spatial, temporal and accuracy related attributes at both Threshold and Objective levels. The following table provides the attribute completion status of the observation requirements list for the Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram. All attributes at the Priority-1/Threshold Level must be completed to allow for observation gap analyses to be conducted.

Table 1: WW-LFW_WFO/SPC Observation Requirement Attributes Remaining [blank] or [tbs]

Priority	Key Threshold Attributes	Other Threshold Attributes	Objective Attributes
1	0	0	247
2	0	0	0
3	0	0	0
Total	0	0	247

Note: The five key attributes are: Geographic Coverage, Vertical Resolution, Horizontal Resolution, Measurement Accuracy, and Sampling Interval. The other attributes are: Vertical Range, Measurement Range, Data Latency, and Long-term Stability.

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Appendix A Local Forecasts and Warnings Program, Weather Forecast Office/Storm Prediction Center Subprogram, Observation Requirements

Key: V=value, U=units, W=weight

Observation Requirement	Observation Requirement Priority	T/O	Geographic Coverage		Vertical Resolution			Horizontal Resolution			Measurement Accuracy			Sampling Interval		
			V	W	V	U	W	V	U	W	V	U	W	V	U	W
Air Temperature Profile: Storm Area	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	m	25	0.5	K	20	1	min	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Air Temperature: Profiles	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	km	25	0.5	K	20	5	min	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Air Temperature: Surface	1	T	CONUS+AK+HI+US Territories	15	na	na	0	25	km	25	0.1	K	25	1	min	10
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Cloud Base Height	1	T	CONUS+AK+HI+US Territories	15	na	na	40	25	km	0	8	m	35	1	min	10
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Dew Point Profile: Storm Area	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	m	25	0.5	K	20	1	min	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Dew Point Temperature: Profiles	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	km	25	0.5	K	20	5	min	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Dew Point Temperature: Surface	1	T	CONUS+AK+HI+US Territories	15	na	na	0	25	km	25	0.1	K	25	1	min	10
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Imagery: Infrared	1	T	CONUS+AK+HI+US Territories	30	na	na	0	2	km	25	1	km	25	5	min	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Imagery: Microwave	1	T	CONUS+AK+HI+US Territories	30	na	na	0	10	km	30	5	km	30	1	hr	10
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Imagery: Visible	1	T	CONUS+AK+HI+US Territories	30	na	na	0	1	km	25	0.5	km	25	5	min	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Imagery: Water Vapor	1	T	CONUS+AK+HI+US Territories	30	na	na	0	2	km	25	1	km	25	5	min	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Ocean Surface Winds: Direction	1	T	CONUS+AK+HI+US Territories	20	na	na	0	2.5	km	30	10	deg	30	1	hr	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Ocean Surface Winds: Speed	1	T	CONUS+AK+HI+US Territories	20	na	na	0	2.5	km	30	1	m/sec	30	1	hr	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	

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Observation Requirement	Observation Requirement Priority	T/O	Geographic Coverage		Vertical Resolution			Horizontal Resolution			Measurement Accuracy			Sampling Interval		
			V	W	V	U	W	V	U	W	V	U	W	V	U	W
Precipitation Amount	1	T	CONUS+AK+HI+US Territories	20	na	na	0	2.5	km	30	0.5	mm	35	1	min	15
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Precipitation Rate	1	T	CONUS+AK+HI+US Territories	20	na	na	0	2.5	km	30	0.1	in/hr	35	1	min	15
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Precipitation Rate Profile: Storm Area	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	m	25	1	mm/hr	20	30	sec	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Precipitation Type	1	T	CONUS+AK+HI+US Territories	20	na	na	0	25	km	20	na	na	50	1	min	10
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Precipitation Type: Storm Area	1	T	CONUS+AK+HI+US Territories	10	100	m	15	100	m	15	na	na	50	30	sec	10
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Sea Surface Temperature	1	T	CONUS+AK+HI+US Territories	20	na	na	0	1	km	30	0.5	K	30	1	hr	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Station Pressure	1	T	CONUS+AK+HI+US Territories	25	na	na	0	25	km	20	0.1	hPa	40	1	min	15
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Surface Winds: Direction	1	T	CONUS+AK+HI+US Territories	15	na	na	0	25	km	25	1	deg	25	1	min	10
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Surface Winds: Speed	1	T	CONUS+AK+HI+US Territories	15	na	na	0	25	km	25	0.5	m/sec	25	1	min	10
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Total Lightning (Zones 1-6, 16, 20-22)	1	T	CONUS+AK+HI+US Territories	20	na	na	0	0.5	km	30	0.5	km	30	0.001	sec	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Total Water Level	1	T	CONUS+AK+HI+US Territories	20	na	na	0	10	km	30	1	cm	30	1	hr	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Visibility: Land	1	T	CONUS+AK+HI+US Territories	10	na	na	0	400	m	50	100	m	30	1	min	10
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Visibility: Marine	1	T	CONUS+AK+HI+US Territories	20	na	na	0	2	km	30	0.5	km	30	1	hr	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Wave Height	1	T	CONUS+AK+HI+US Territories	20	na	na	0	5	km	30	0.5	m	30	1	hr	20
		O			na	na		tbs	tbs		tbs	tbs		tbs	tbs	
Wind Direction Profile: Storm Area	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	m	25	1	deg	20	30	sec	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	

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Observation Requirement	Observation Requirement Priority	T/O	Geographic Coverage		Vertical Resolution			Horizontal Resolution			Measurement Accuracy			Sampling Interval		
			V	W	V	U	W	V	U	W	V	U	W	V	U	W
Wind Profiles: Direction	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	km	25	1	deg	20	5	min	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Wind Profiles: Speed	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	km	25	0.5	m/sec	20	5	min	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	
Wind speed Profile: Storm Area	1	T	CONUS+AK+HI+US Territories	15	100	m	25	100	m	25	0.5	m/sec	20	30	sec	15
		O			tbs	tbs		tbs	tbs		tbs	tbs		tbs	tbs	

Table Key and Definitions:

Column Titles: V=value, U=units, W=weight

Table Entries: na=not applicable, tbs=to be supplied, PT=Precipitation Type (e.g., rain, freezing rain, sleet, snow, hail)

Observation Requirements Modifiers:

Storm Area: "Storm Area" does not encompass a fixed time/space region. It is defined as: "A relocatable, three dimensional region of sufficient size to observe the pre-convective, convective and near-storm environments encompassing convective storm phenomena, from MCS-scale down to tornado scale, for times 6-12 hours prior to anticipated convective initiation through dissipation of convective phenomena."

Profile: An observation that shows the variation of a meteorological parameter with height.

Surface: Typically refers to an observation at standard measuring levels above a surface, such as 2m for temperature and 10m for winds.

Appendix B WW-LFW_WFO/SPC, Priority-1 Requirements Validation

Appendix B.1 Validation Documents Submitted

The following Validation Documents have been submitted in support of the Local Forecasts and Warnings Program's Priority-1 Observation Requirements.

Table B-1: Validation Documents provided to support Priority- Requirements

Doc #	Validation Document Title	Document Type
1	SURFACE WEATHER OBSERVING (DOT/FAA) - May 11, 2001	DOT/FAA Instruction
2	Automated Surface Observing System (ASOS) User's Guide - March 1998	System Users' Guide
3	Aviation Priority 1 - powerpoint slides (CT-AWX & CT-MWX Validation Slides)	CT-AWX Validation Briefing
4	Mobile Doppler Radar Observations of a Tornado in a Supercell near Bassett, Nebraska, on 5 June 1999. Part I: Tornadogenesis (OSSE)	Journal Article
5	Federal Lightning Capability Requirements (OFCM), July 2008	OFCM Guide
6	FEDERAL METEOROLOGICAL HANDBOOK No. 1 - Surface Weather Observations and Reports	US Met Federal Handbook
7	FEDERAL METEOROLOGICAL HANDBOOK NO. 11 - DOPPLER RADAR METEOROLOGICAL OBSERVATIONS, PART C, WSR-88D PRODUCTS AND ALGORITHMS, April 2006	System Products & Algorithms Guide
8	Observing Weather and Climate FROM THE GROUND UP, A Nationwide Network of Networks, National Research Council, The National Academies Press	NRC Technical Document
9	A Phenomenological Approach to the Specification of Observational Requirements, 02 June 2005	Journal Article
10	Large-Eddy Simulation of a Tornado's Interaction with the Surface	Journal Article
11	NWS Marine Surface Data Requirements	NWS Instruction
12	National Data Buoy Center, NDBC - What are the sensors reporting, sampling, and accuracy readings?	NWS Instruction
13	Ships Synoptic Code and Observing Methods: dd, Wind Direction	US Met Federal Handbook
14	NATIONAL WEATHER SERVICE INSTRUCTION 10-310: COASTAL MARINE FORECAST SERVICES, AUGUST 22, 2008	NWS Instruction
15	NATIONAL WEATHER SERVICE INSTRUCTION 10-311: OFFSHORE, NAVTEX, HIGH SEAS, AND MARINE FORECAST SERVICES, AUGUST 22, 2008	NWS Instruction
16	NATIONAL WEATHER SERVICE INSTRUCTION 10-312: GREAT LAKES MARINE SERVICES, OCTOBER 6, 2008	NWS Instruction
17	NATIONAL WEATHER SERVICE INSTRUCTION, NWSI 10-1301, Feb 2010, Aviation & Synoptic Observations	NWS Instruction
18	An OSSE Framework Based on the Ensemble Square Root Kalman Filter for Evaluating the Impact of Data from Radar Networks on Thunderstorm Analysis and Forecasting	Journal Article
19	Guide to Meteorological Instruments and Methods of Observation, WMO-No. 8	WMO Guide
20	NOAA Operational Ocean Surface Vector Winds Requirements Workshop, NHC, July 2006	
21	Subject Matter Expert Statement	SME Statement

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Doc #	Validation Document Title	Document Type
22	WMO Manual on Marine Meteorological Services, Vol 1	WMO Requirements Document
23	WMO Manual on the Global Data-Processing and Forecasting System	WMO Requirements Document
24	A Coastal Theme for the IGOS Partnership, Report of the Coastal Theme Team, Jan 2006	IGOS Technical Document
25	QuickSCAT Follow-On Mission: User Impact Study Report	System User Impact Study Report
26	Requirements of numerical weather prediction for observations of oceans	Journal Article
27	A National Operational Wave Observation Plan, Prepared for the Interagency Working Group on Ocean Observations, March 2009	IOOS Report
28	NATIONAL WEATHER SERVICE INSTRUCTION 10-302, OCTOBER 2010: MARINE AND COASTAL SERVICES AREAS OF RESPONSIBILITY	NWS Instruction
29	NATIONAL WEATHER SERVICE MANUAL 10-507, November 2009: PUBLIC GEOGRAPHIC AREAS OF RESPONSIBILITY	NWS Manual
30	Operations of the National Weather Service Spaceflight Meteorology Group; AMS, Sept 1997	Journal Article
31	Satellite Observations of a Severe Supercell Thunderstorm on 24 July 2000 Made during the GOES-11 Science Test; AMS, Feb 2002	Journal Article
32	Fire Detection Using GOES Rapid Scan Imagery; AMS, June 2004	Journal Article
33	A Quantitative Analysis of the Enhanced-V Feature in Relation to Severe Weather; AMS, Aug 2007	Journal Article
34	Forecasting Convective Initiation by Monitoring the Evolution of Moving Cumulus in Daytime GOES Imagery; AMS, Jan2006	Journal Article
35	Objective Satellite-Based Detection of Overshooting Tops Using Infrared Window Channel Brightness Temperature Gradients; AMS, Feb 2010	Journal Article
36	Prototyping a Generic, Unified Land Surface Classification and Screening Methodology for GPM-era Microwave Land Precipitation Retrieval Algorithms; AMS, 2010	Journal Article
37	Many uses of the geostationary operational environmental satellite-10 sounder and imager during a high inclination state; AMS, Jan2009	Journal Article
38	Convectively Induced Transverse Band Signatures in Satellite Imagery; AMS, Oct 2009	Journal Article
39	Understanding Satellite-Observed Mountain-Wave Signatures Using High-Resolution Numerical Model Data; AMS, Feb 2009	Journal Article
40	Application of Airborne Passive Microwave Observations for Monitoring Inland Flooding Caused by Tropical Cyclones; AMS, Oct 2009	Journal Article
41	MULTIFUNCTIONAL MESOSCALE OBSERVING NETWORKS, BAMS, July 2005	Journal Article
42	Toward a New National Weather Service - Assessment of NEXRAD Coverage and Associated Weather Services	NRC Report

Appendix B.2 Validation Documents Mapping to Observation Requirements

NOAA Program Observation Requirements Document (PORD)
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{PORD Template w/ MACROs}and Technology Planning and Integration Office (TPIO) representatives worked jointly to identify references to validate both the need for an observation requirement and its specific measurement attributes. These validation documents support one or more of the Priority-1 Requirements as shown in Table B-2 below. For occurrences where validation documents could not be identified, Program Subject Matter Experts (SME) justifications are provided.

Table B-2: Validation Document Mapping to Observation Requirement

Observation Requirement	Priority	Documents Submitted
Air Temperature Profile: Storm Area	1	16, 32, 43, 44
Air Temperature: Profiles	1	32, 43, 44
Air Temperature: Surface	1	2, 3, 11, 43, 44, 60
Cloud Base Height	1	3, 11, 43, 44, 60
Dew Point Profile: Storm Area	1	13, 16, 32, 43, 44
Dew Point Temperature: Profiles	1	13, 15, 32, 43, 44
Dew Point Temperature: Surface	1	2, 3, 11, 43, 44, 60
Imagery: Infrared	1	36, 43, 44, 46, 47, 49, 50, 51, 53
Imagery: Microwave	1	36, 43, 44, 52, 58
Imagery: Visible	1	36, 43, 44, 46, 47, 48, 50, 51, 52, 53, 54, 55
Imagery: Water Vapor	1	36, 43, 44, 47, 48, 55
Ocean Wind Direction: Surface	1	35, 37, 38, 39, 40, 43, 44
Ocean Wind Speed: Surface	1	35, 37, 38, 39, 40, 43, 44
Precipitation Amount	1	3, 13, 30, 43, 44
Precipitation Rate	1	3, 12, 13, 32, 43, 44
Precipitation Rate Profile: Storm Area	1	6, 12, 32, 43, 44
Precipitation Type	1	3, 43, 44, 60
Precipitation Type: Storm Area	1	3, 13, 32, 33, 43, 44, 60
Sea Surface Temperature	1	37, 38, 39, 41, 43, 44
Station Pressure	1	3, 34, 43, 44, 60
Wind Direction: Surface	1	3, 43, 44, 60
Wind Speed: Surface	1	3, 11, 43, 44, 60
Total Lightning (Zones 1-6, 16, 20-22)	1	9, 43, 44
Total Water Level	1	18, 19, 43, 44, 60
Visibility: Land (All Obscurations)	1	2, 3, 30, 43, 44
Visibility: Marine	1	24, 25, 26, 36, 43, 44
Wave Height	1	37, 39, 42, 43, 44
Wind Direction Profile: Storm Area	1	3, 6, 13, 33, 43, 44
Wind Direction Profile	1	3, 6, 13, 15, 33, 43, 44
Wind Speed Profile	1	3, 6, 13, 15, 43, 44
Wind Speed Profile: Storm Area	1	3, 6, 13, 32, 43, 44

Appendix B.3 Validation Assessment for Priority-1 Requirements

{PORD Template w/ MACROs} and TPIO representatives worked jointly to review the submitted documentation, and identify the “level of validation” for the Threshold value of each of the five key attributes of each Priority-1 Observation Requirement.

Table B-3: Level of Validation for each Priority 1 Requirement Attribute

Parameters	Attribute Validated				
	Geographic Coverage	Vertical Resolution	Horizontal Resolution	Measurement Accuracy	Sampling Interval
Air Temperature Profile: Storm Area	CONUS+AK+HI+US Territories	100 m	100 m	0.5 K	1 min
Air Temperature: Profiles	CONUS+AK+HI+US Territories	100 m	100 km	0.5 K	5 min
Air Temperature: Surface	CONUS+AK+HI+US Territories	na	25 km	0.1 K	1 min
Cloud Base Height	CONUS+AK+HI+US Territories	na	25 km	8 m	1 min
Dew Point Profile: Storm Area	CONUS+AK+HI+US Territories	100 m	100 m	0.5 K	1 min
Dew Point Temperature: Profiles	CONUS+AK+HI+US Territories	100 m	100 km	0.5 K	5 min
Dew Point Temperature: Surface	CONUS+AK+HI+US Territories	na	25 km	0.1 K	1 min
Imagery: Infrared	CONUS+AK+HI+US Territories	na	2 km	1 km	5 min
Imagery: Microwave	CONUS+AK+HI+US Territories	na	10 km	5 km	1 hr
Imagery: Visible	CONUS+AK+HI+US Territories	na	1 km	0.5 km	5 min
Imagery: Water Vapor	CONUS+AK+HI+US Territories	na	2 km	1 km	5 min
Ocean Wind Direction: Surface	CONUS+AK+HI+US Territories	na	2.5 km	10 deg	1 hr
Ocean Wind Speed: Surface	CONUS+AK+HI+US Territories	na	2.5 km	1 m/sec	1 hr
Precipitation Amount	CONUS+AK+HI+US Territories	na	2.5 km	0.5 mm	1 min
Precipitation Rate	CONUS+AK+HI+US Territories	na	2.5 km	0.1 in/hr	1 min
Precipitation Rate Profile: Storm Area	CONUS+AK+HI+US Territories	100 m	100 m	1 mm/hr	30 sec
Precipitation Type	CONUS+AK+HI+US Territories	na	25 km	PT	1 min
Precipitation Type: Storm Area	CONUS+AK+HI+US Territories	100 m	100 m	PT	30 sec
Sea Surface Temperature	CONUS+AK+HI+US Territories	na	1 km	0.5 K	1 hr
Station Pressure	CONUS+AK+HI+US Territories	na	25 km	0.1 hPa	1 min
Wind Direction: Surface	CONUS+AK+HI+US Territories	na	25 km	1 deg	1 min
Wind Speed: Surface	CONUS+AK+HI+US Territories	na	25 km	0.5 m/sec	1 min
Total Lightning (Zones 1-6, 16, 20-22)	CONUS+AK+HI+US Territories	na	0.5 km	0.5 km	0.001 sec

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Parameters	Attribute Validated				
	Geographic Coverage	Vertical Resolution	Horizontal Resolution	Measurement Accuracy	Sampling Interval
Total Water Level	CONUS+AK+HI+US Territories	na	10 km	1 cm	1 hr
Visibility: Land (All Obscurations)	CONUS+AK+HI+US Territories	na	400 m	100 m	1 min
Visibility: Marine	CONUS+AK+HI+US Territories	na	2 km	0.5 km	1 hr
Wave Height	CONUS+AK+HI+US Territories	na	5 km	0.5 m	1 hr
Wind Direction Profile: Storm Area	CONUS+AK+HI+US Territories	100 m	100 m	1 deg	30 sec
Wind Direction Profile	CONUS+AK+HI+US Territories	100 m	100 km	1 deg	5 min
Wind Speed Profile	CONUS+AK+HI+US Territories	100 m	100 km	0.5 m/sec	5 min
Wind Speed Profile: Storm Area	CONUS+AK+HI+US Territories	100 m	100 m	0.5 m/sec	30 sec

Legend: Level of Validation

Direct Validation Documentation Submitted	
Associated Validation Documentation Submitted	
SME Consensus Validation Documentation Submitted	
Not Validated	
Attribute not applicable	

Appendix C Program Acronym List

Acronym	Definition
CL-COM_Atmos	Climate - Observations and Monitoring, Atmosphere Sub-Program
CL-COM_CF	Climate - Observations and Monitoring, Climate Forcing Sub-Program
CL-COM_Land	Climate - Observations and Monitoring, Land Sub-Program
CL-COM_Oceans	Climate - Observations and Monitoring, Ocean Sub-Program
CL-CRM	Climate - Research & Modeling
CT-AWX	Commerce and Transportation - Aviation Weather
CT-GEO	Commerce and Transportation - Geodesy
CT-MTS	Commerce and Transportation - Marine Transportation Systems
CT-MWX	Commerce and Transportation - Marine Weather
CT-SFX	Commerce and Transportation - Surface Weather
EC-AQC	Ecosystem - Aquaculture
EC-CMR	Ecosystem - Coastal Marine Resources
EC-COR	Ecosystem - Corals
EC-EAP	Ecosystem - Ecosystems Assessment Program
EC-ERP	Ecosystem - Ecosystem Research
EC-HAB	Ecosystem - Habitat
EM-EMC	Environmental Modeling - Environmental Modeling Center
MS-IOS	Mission Support - Integrated Ocean Observing System
MS-TRP	Mission Support - Technical Requirements, Planning and Integration
WW-AQL	Weather and Water - Air Quality
WW-CEO	Weather and Water - Coasts, Estuaries and Oceans (CEO)
WW-IWF	Weather and Water - Integrated Water Forecasting
WW-LFW	Weather and Water - Local Forecasts and Warnings
WW-SWX	Weather and Water - Space Weather
WW-WWS	Weather and Water - W&W Science & Technology Infusion
WW-WWS_HURR	Weather and Water - W&W Science & Technology Infusion, Hurricanes Sub-Program
WW-WWS_OCW	Weather and Water - W&W Science & Technology Infusion, Ocean & Coastal Weather Sub-Program
WW-WWS_SEV	Weather and Water - W&W Science & Technology Infusion, Severe Weather Sub-Program
WW-WWS_WR	Weather and Water - W&W Science & Technology Infusion, Water Resources Sub-Program

Appendix D PORD Table Column Definitions

[Note: In PORA tables "V" = attribute value, "U" = attribute units, "W" = attribute weight]

Attribute Weight: Attribute weight: relative weight of each of the basic attributes, a value from 1 to 100, with the most important of the attributes given the highest relative value. All weights across a requirement row should add up to 100.

Observational Requirement Title	Geographic Coverage Weight	Vertical Resolution Weight	Horizontal Resolution Weight	Measurement Accuracy Weight	Sampling Interval Weight	Number of ODS/Flt Hrs/HODs Weight*
Air Temperature: Surface	50	0	10	30	10	0
Land Cover	0	0	30	50	20	0
Water Vapor: Profiles	20	30	10	30	10	0
At Sea Data Collection	20	10	10	10	10	40
Airborne Data Collection	30	10	10	10	10	30

*Only for Program that have At Sea Data Collection, Flight Hours, or Human Observer Observation Requirements

Data Latency (Data Ltncy): Elapsed time from data acquisition until delivery of data to the user. Latest time by which an element can be delivered and still be useful to the customer.

Data Latency Units: Measurement units for data latency of the element.

Use:

- "sec" for 1-59 seconds
- "min" for 1-59 mins
- "hr" for 1-23 hours
- "day" for 1-6 days
- "wk" for 1-3 wks
- Etc.

Data Latency Weight: See "Attribute Weights."

Geographic Coverage (Geo Cov): Geographic coverage categories can be defined as needed for the Program. See separate list of Geo Cov category definitions.

Geographic Coverage Weight: See "Attribute Weights."

GPRA: Government Performance and Results Act

Horizontal Resolution (Horiz Res): The smallest horizontal increment needed of the data. Spatial granularity in the horizontal with which information and data are required.

Horizontal Resolution Units: Measurement units for horizontal resolution of the element. Use:

- "km" for kilometers
- "m" for meters
- Etc.

Horizontal Resolution Weight: See "Attribute Weights."

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Vertical Resolution (Vert Res): The smallest height increment of the data. Spatial granularity in the vertical with which information and data are provided, For example: distance between adjacent vertical grid points in a radiosonde observation.

Vertical Resolution Units: Measurement units for vertical resolution of the element.

Use:

“km” for kilometers

“m” for meters

Etc.

Vertical Resolution Weight: See “Attribute Weights.”

Weight: See “Attribute Weights.”

Geographic Coverage Table

CORL Geographic Coverage Category	Definition*
Arctic	TBD; definition to be added by NOS and TPIO agreement
Coastal Global	The coast is defined as the part of the land adjoining or near the ocean. Coastal is a few km either side of water/land boundary. Includes both littoral and sub littoral (http://en.wikipedia.org/wiki/Littoral_zone).
Coastal US	The coast is defined as the part of the land adjoining or near the ocean.
CONUS	Contiguous U.S. rectangle, 3000 km N/S by approx 5000 km E/W.
CONUS+AK+HI	Contiguous U.S. rectangle, 3000 km N/S by approx 5000 km E/W. Plus Alaska and Hawaii.
CONUS+AK+HI+US EEZ	Contiguous U.S. rectangle, 3000 km N/S by approx 5000 km E/W. Plus Alaska, Hawaii and US Exclusive Economic Zone (see below for definition of EEZ.)
CONUS+AK+HI+US Territories	Contiguous U.S. rectangle, 3000 km N/S by approx 5000 km E/W. Plus Alaska, Hawaii, US EEZ and US Territories (Palmyra Atoll, U.S. coastal waters out to 12 nautical miles, U.S. flag vessels at sea, Guam, Northern Mariana Islands (commonwealth), Puerto Rico (commonwealth), United States Virgin Islands, American Samoa, Wake Island, Midway Islands, Johnston Atoll, Baker Island, Howland Island, Jarvis Island, Kingman Reef, Bajo Nuevo Bank, Serranilla Bank, Navassa Island)
EEZ Global	Under the law of the sea, an Exclusive Economic Zone (EEZ) is a sea zone over which a state has special rights over the exploration and use of marine resources. Generally a state's EEZ extends to a distance of 200 nautical miles (370 km) out from its coast. The exception to this rule occurs when EEZs would overlap; that is, state coastal baselines are less than 400 nautical miles apart. When an overlap occurs, it is up to the states to delineate the actual boundary. Generally, any point within an overlapping area defaults to the most proximate state. States also have rights to the seabed of the continental shelf up to 350 nautical miles from the coast, where this extends beyond the EEZ, but this does not form part of their EEZ.
EEZ US	The Exclusive Economic Zone starts at the coastal baseline and extends 200 nautical miles out into the sea, perpendicular to the baseline. Thus, the EEZ overlaps both the contiguous zone and US territorial waters.
Equatorial EEZ	The Equatorial EEZ starts at the coast of all states/countries within the equatorial regions of the world (limited in latitude by the Tropic of Cancer in the northern hemisphere at approximately 23°26' (23.4°) N latitude and the Tropic of Capricorn in the southern hemisphere at 23°26' (23.4°) S latitude) and extends 200 nautical miles (370 kilometers) out into the sea, perpendicular to the baseline.
Equatorial Ocean	Seated in the equatorial regions of the world, limited in latitude by the Tropic of Cancer in the northern hemisphere at approximately 23°26' (23.4°) N latitude and the Tropic of Capricorn in the southern hemisphere at 23°26' (23.4°) S latitude

