Weather Information Database (WIDB)
Information Technology System Architecture Document

Appendix A – NextGen IT Requirements

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Appendix A – NextGen Requirements

1 Introduction

This appendix presents those key NextGen Cube IT-related requirements identified during review of numerous NextGen project documents. The specific documents reviewed are presented in a table in the next section. A reference # has been associated with each document. Additional IT requirements were also captured from these referenced documents, but in many cases, these requirements were duplicative with other requirements, or too general to be worthy of consideration and have not been included in this appendix. Also, although additional documents were reviewed, none yielded relevant IT requirements worth consideration at this time.

The Requirements Matrix contains the following fields for each requirement:

- Line # - Reference number for location of each requirement within the table.
- Rqmt ID – A sequentially assigned number to distinguish uniquely identified requirements within each reference document. Note these are not in sequence due to the fact that the requirements have been sorted according to other fields.
- Requirement – The actual requirement as presented in the reference document
- Derived Requirement – In some cases, a requirement was derived from a formal requirement the better addresses the intent of the original requirement
- Source Reference – The reference ID # of the source document
- Reference Details – The section number or identifying location of the requirement within the source document
- Comments/Notes
- Rqmt Category – A general category grouping of similar requirements
- IOC/MOC/FOC/All – An indication of what timeframe a requirement is associated with
- SAS/Non-SAS/Both – An indication of where a requirement is related to the SAS portion of the Cube

The table has been sorted in the following fields:

- 1st level sort - Rqmt Category
- 2nd level sort - Source Reference
- 3rd level sort - Rqmt ID

2 References

The following table presents those documents used as requirements sources.

Reference #	Document Name	Version	Date	Source
1	Concept of Operations for the Next Generation Air Transportation System	V2.0	6/13/2007	JPDO
2	NextGen Network-Enabled Weather IT CONOPS	3.2	8/20/2008	NCAR, MITLL, NOAA/GSD
3	NextGen ATS Enterprise Architecture	V2.0	6/22/2007	JPDO
4	Four-Dimensional Weather Functional Requirements for NextGen Air Traffic Management	0.1	1/18/2008	JPDO Functional Rqmts Study Team
5	Weather Concept of Operations	V1.0	5/13/2006	JPDO Weather Integrated Product Team
6	NextGen Weather Plan	0.6	3/20/2009	JPDO
7	List of IOC and FOC products that NWS has committed to provide for NextGen			
8	Final Performance Requirements (iFR) First Working Draft Wrapper - 4-D Weather Data Cube SAS	Draft	2/11/2009	JDPO
9	NextGen Weather Information Database - Information Technology Needs (Draft SON)	Draft	3/13/2009	OST
10	Skjei Telecom Contract SOW			
11	Concept of Operations and Operational Requirements - WIDB for the NextGen 07-042		5/4/2009	Office of Climate, Water and Weather Services
12	Definition of 4-D SAS		6/17/2009	NEWP presentation by JPDO Wx Policy Team2
13	ATM Wx Integration Plan	Draft V0.7	4/22/2009	JPDO

3 Matrix of Key Requirements

Line #	Rqmt ID	Requirement	Derived Requirement	Source Reference	Reference Details	Comments/Notes	Rqmt Category	IOC / MOC / FOC/A ll	SAS / Non-SAS / Both
1.	141	The Cube shall support the use case: Network bandwidth minimization use case		2	Sect 6.7.2		Access	All	Both
2.	44	Producers and users of aviation weather information access it via the network infrastructures of the various NextGen partner agencies' networks or via private gateways		4	Sect 2.4		Access	All	Both
3.	11	Data flows will be multi-directional		9	Sect 4		Access	All	Both
4.	14	WIDB shall require additional lower level components to support secure, high-bandwidth communication between the participating agencies.		11	Sect 2.0		Access	All	Both
5.	42	WIDB shall provide the ability for data to be pushed to, or pulled by, the users and integrated into FAA and user developed decision support systems		11	Sect 8.0	1.3.5	Access	FOC	Both
6.	88	The Cube shall support the use case: Adding a new data field to a non-critical weather data stream with minimal management overhead		2	Sect 6.2.1		Agility	All	Both
7.	94	The Cube shall support the use case: Managed migration of clients to new service version	Allow update to registry indicating change to available product, including format/service schema changes	2	Sect 6.2.2		Agility	All	Both

8.	96	The Cube shall support the use case: Managed migration of clients to new service version	Support both legacy and new service concurrently	2	Sect 6.2.2		Agility	All	Both
9.	98	The Cube shall support the use case: Managed migration of clients to new service version	Support means terminating legacy source for existing products	2	Sect 6.2.2		Agility	All	Both
10.	3	NextGen will be scalable to meet changing traffic load and demand – both on a daily basis, as well as time-scales measured in years and decades		8	1.2		Agility	All	Both
11.	39	SAS observations will be accessible within operational dissemination and retrieval requirements for 18 hours		4	Sect 2.3		Archival	All	SAS
12.	40	Only the two most recent 4-D Wx SAS forecasts will be retained.		4	Sect 2.3		Archival	All	SAS
13.	41	It will be necessary to archive forecast information for research and accident investigations and to produce climatological products		4	Sect 2.3		Archival	All	SAS
14.	43	Policy decisions will determine which 4-D Wx SAS information will be sent to a central archive for permanent storage		4	Sect 2.3	Implies a central archive	Archival	All	SAS
15.	59	The 4-D SAS weather information shall be archived at the resolution as it is in the 4-D Wx SAS		4	Sect 4		Archival	All	SAS
16.	120	The NextGen shall archive weather information for at least 15 days for accident investigation.		4	Appendix M		Archival	FOC	Both
17.	121	The NextGen shall archive weather information for at least 13 years for use in weather R&D.		4	Appendix M		Archival	FOC	Both
18.	122	The NextGen shall archive weather information forever for the production of climatology.		4	Appendix M		Archival	FOC	Both

19.	120	The Cube shall support the use case: Data center–level fault tolerance	Supports redundant, backup service provider / sources for critical data	2	Sect 6.4.3		Availability	All	Both
20.	124	The Cube shall support the use case: Data center–level fault tolerance	Supports data requestors to be notified of lack of data avilability, if backup service provider / source is not readily available	2	Sect 6.4.3		Availability	All	Both
21.	56	The 4-D Weather SAS shall meet reliability standards set by operational users including information needed for critical and essential operations		4	Sect 4	These need to be better defined	Availability	All	SAS
22.	64	The 4-D Weather SAS shall be continuously accessible to users - Essential service = .999		4	Sect 4		Availability	All	SAS
23.	65	The 4-D Weather SAS shall be continuously accessible to users - Critical service = .99999		4	Sect 4, Sect 5		Availability	All	SAS
24.	67	For essential services - The 4-D Weather SAS shall have a MTTR of .5 hours.		4	Sect 4		Availability	All	SAS
25.	68	For essential services - The 4-D Weather SAS shall have an MTBF of 5,000 hours;		4	Sect 4, Sect 5		Availability	All	SAS
26.	69	For essential services - The 4-D Weather SAS shall have no loss of service that exceeds one per week.		4	Sect 4, Sect 5		Availability	All	SAS
27.	70	For essential services - The 4-D Weather SAS shall not have a loss of service for essential weather information that exceeds 10 minutes.		4	Sect 4, Sect 5		Availability	All	SAS
28.	71	For critical services - The 4-D Weather SAS shall have a MTTR of .5 hours,		4	Sect 4		Availability	All	SAS
29.	72	For critical services - The 4-D Weather SAS shall have an MTBF of 50,000 hours		4	Sect 4		Availability	All	SAS

30.	73	For critical services - The 4-D Weather SAS shall have no loss of service that exceeds one per week		4	Sect 4, Sect 5		Availability	All	SAS
31.	74	For critical services - The 4-D Weather SAS shall not have a loss of service for critical weather information that exceeds 6 seconds.		4	Sect 4, Sect 5		Availability	All	SAS
32.	4		Include support for NWS Center Weather Service Units (CWSU) Cube weather needs (including products, ConOps, interconnects and interfaces, access and security, data flows and volumes)	10	Task 2		Compatibility	All	Both
33.	5		Include support for Aviation Weather Center (AWC) Cube weather needs (including products, ConOps, interconnects and interfaces, access and security, data flows and volumes)	10	Task 2		Compatibility	All	Both
34.	6		Include support for NWS Weather Forecast Offices (WFO) Cube weather needs (including products, ConOps, interconnects and interfaces, access and security, data flows and volumes)	10	Task 2		Compatibility	All	Both
35.	7	Ensure good technical integration with Meteorological Development Labs (MDL) development of the National Digital Forecast Database into the vertical dimension		10	Task 2		Compatibility	All	Both
36.	9	Ensure good technical integration with CWSU re-alignment project		10	Task 2		Compatibility	All	Both
37.	10	Ensure good technical integration with Advanced Weather Interactive Processing System (AWIPS) next generation SOA software re-architecture effort, known as AWIPS-II		10	Task 2		Compatibility	All	Both

38.	13		Include support for FAA tower Cube weather needs (including needed products, interconnects/interfaces, access/security, growth, ConOps, data flow and volumes, performance)	10	Task 2		Compatibility	All	Both
39.	14		Include support for FAA TRACON Cube weather needs (including needed products, interconnects/interfaces, access/security, growth, ConOps, data flow and volumes, performance)	10	Task 2		Compatibility	All	Both
40.	15		Include support for FAA ARTCC Cube weather needs (including needed products, interconnects/interfaces, access/security, growth, ConOps, data flow and volumes, performance)	10	Task 2		Compatibility	All	Both
41.	16		Include support for FAA Herndon Central Control Facility Cube weather needs (including needed products, interconnects/interfaces, access/security, growth, ConOps, data flow and volumes, performance)	10	Task 2		Compatibility	All	Both
42.	46	The IT instantiation of the WIDB shall allow the interoperability between different systems on different platforms using different programming languages.		11	Sect 8.0	2.2.1	Compatibility	IOC	Both
43.	2	The Cube shall support the use case: Define 4-D data cube domain for a community of interest	Provide access to available data products for entire cube	2	Sect 6.1.1.1		Contents	All	Both

44.	38	The Cube shall support the use case: Obtain or view air traffic hazards and restrictions within a geometry for the past, present, or future	The System assesses restrictions from NOTAMs and/or AIR/SIGMETs	2	Sect 6.1.3.4	What specific interpretations are required? What system does interpretation?	Contents	All	Both
45.	11	Provide Weather Diagnostic Forecast (Arch Ent ID 12210) - This activity provides the weather diagnostic forecast by performing ensemble forecast modeling.		3	Section 3.1.6.14 4.3 Appendix C		Contents	All	Both
46.	14	The weather picture information consists of observed weather and forecast weather.		3	4.5 Appendix E		Contents	All	Both
47.	15	The weather picture weather is available as gridded service; that is to say, it exists over different 3D meteorological scales.		3	4.5 Appendix E		Contents	All	Both
48.	16	The observed weather information includes but is not limited to the following: convection, turbulence, icing, rain, hail, snowfall, lighting, ceiling, visibility, space radiation, wind speed, wind direction, temperature, humidity, noise propagation potential, and airport plume concentration, atmospheric sensitivity to exhaust, volcanic ash, and wake vortex information.		3	4.5 Appendix E		Contents	All	Both
49.	17	Forecast weather has the same information as observed weather with the additional parameters of probability of occurrence and a confidence level describing the occurrence probability		3	4.5 Appendix E		Contents	All	Both
50.	7	SAS shall include current observations, interpolated current conditions, and predictions of future conditions		4	Sect 1.1.1	Need detailed analysis to define specific systems / data / products that need to be included	Contents	All	SAS

51.	10	Nearly all relevant sources of weather data will be included in the Cube (e.g, surface observations, radar data, satellite data, and forecast model output)		4	Sect 1.1.1	Need detailed analysis to define specific systems / data / products that need to be included	Contents	All	Both
52.	21	Cube contains all unclassified weather information used directly and indirectly for making aviation decisions (e.g. observations, automated gridded products, models, climatologocial data, and human-produced forecasts from public and private sources)		4	Sect 2.2	Need detailed analysis to define specific systems / data / products that need to be included	Contents	All	Both
53.	22	Cube is composed of text products, graphic products, and machine-readable products		4	Sect 2.2	Need detailed analysis to define specific systems / data / products that need to be included	Contents	All	Both
54.	31	SAS will contain weather information from foreign sources selected by domain authority for foreign FIRs (including at a minimum - observation data at international airports and forecasts for terminal area forecast (TAF) elements, information found in significant meteorological information (SIGMET) and related products, weather aloft information, and space weather as provided by international agreement such as those sponsored by the International Civil Aviation Organization (ICAO) through the World Area Forecast System)		4	Sect 2.3		Contents	All	SAS
55.	32	Both government and private organizations may contribute to the 4-D Wx SAS		4	Sect 2.3		Contents	All	Both

56.	33	SAS will provide the probability for a variety of weather elements to exist at the same point and time		4	Sect 2.3		Contents	All	SAS
57.	37	METAR or aviation selected special weather report (SPECI) are created outside the 4-D Wx SAS using 4-D Wx SAS information		4	Sect 2.3		Contents	All	Non SAS
58.	38	Alerts, advisories, and warnings are not normally in the 4-D Wx SAS and are generated by applications outside the 4-D Wx SAS		4	Sect 2.3		Contents	All	Non SAS
59.	49		The SAS should consist of those systems required to support the IOC functional and performance requirements called out in Table 4-1	4	Sect 4, Sect 5	Need detailed analysis to define specific systems / data / products that need to be included	Contents	IOC	SAS
60.	50		The SAS should consist of those systems required to support the MOC functional and performance requirements called out in Table 4-1	4	Sect 4, Sect 5	Need detailed analysis to define specific systems / data / products that need to be included	Contents	MOC	SAS
61.	51		The SAS should consist of those systems required to support the FOC functional and performance requirements called out in Table 4-1	4	Sect 4, Sect 5	Need detailed analysis to define specific systems / data / products that need to be included	Contents	All	SAS
62.	91		The SAS should consist of those systems required to make available the weather information content presented in Appendix A	4	Appendix A	Need detailed analysis to define specific systems / data / products that need to be included	Contents	All	SAS
63.	92		The SAS should consist of those systems required to satisfy the functionality presented in Appendix B for the IOC timeframe	4	Appendix B	Need detailed analysis to define specific systems / data / products that need to be included	Contents	IOC	Both

64.	93		The SAS should consist of those systems required to satisfy the functionality presented in Appendix B for the MOC timeframe	4	Appendix B	Need detailed analysis to define specific systems / data / products that need to be included	Contents	MOC	Both
65.	94		The SAS should consist of those systems required to satisfy the functionality presented in Appendix B for the FOC timeframe	4	Appendix B	Need detailed analysis to define specific systems / data / products that need to be included	Contents	FOC	Both
66.	95		The Cube should consist of those systems required to satisfy the functionality presented in Appendix B for the IOC timeframe	4	Appendix B	Need detailed analysis to define specific systems / data / products that need to be included	Contents	IOC	Non-SAS
67.	96		The Cube should consist of those systems required to satisfy the functionality presented in Appendix B for the MOC timeframe	4	Appendix B	Need detailed analysis to define specific systems / data / products that need to be included	Contents	MOC	Non-SAS
68.	97		The Cube should consist of those systems required to satisfy the functionality presented in Appendix B for the FOC timeframe	4	Appendix B	Need detailed analysis to define specific systems / data / products that need to be included	Contents	FOC	Non-SAS
69.	101		The SAS should consist of those systems required to support the "Observe Atmospheric and Space Conditions" functions presented in Appendix M (Table M-1)	4	Appendix M		Contents	FOC	Both
70.	102		The SAS should consist of those systems required to support the "Observe Space Conditions" functions presented in Appendix M (Table M-2)	4	Appendix M		Contents	FOC	Both

71.	103		The SAS should consist of those systems required to support the "Forecast Weather" functions presented in Appendix M (Table M-3)	4	Appendix M		Contents	FOC	Both
72.	104		The SAS should consist of those systems required to support the "Forecast Space Conditions" functions presented in Appendix M (Table M-4)	4	Appendix M		Contents	FOC	Both
73.	105		The SAS should consist of those systems required to support the "Catalog Weather Data" functions presented in Appendix M (Table M-5)	4	Appendix M		Contents	FOC	Both
74.	106		The SAS should consist of those systems required to support the "Analyze Weather Data" functions presented in Appendix M (Table M-6)	4	Appendix M		Contents	FOC	Both
75.	114		The SAS should consist of those systems required to support the "Forecast Weather" functions presented in Appendix M (Table M-8)	4	Appendix M		Contents	FOC	Both
76.	123		The SAS should consist of those systems required to support the "Provide Climatology" functions presented in Appendix M (Table M-10)	4	Appendix M		Contents	FOC	Both
77.	124		The SAS should consist of those systems required to support the "Display Forecasts" functions presented in Appendix M (Table M-11)	4	Appendix M		Contents	FOC	Both
78.	4	Weather information supports availability of celing and visibility informaton for improved airport arrival flow decisions.		5	Executive Summary		Contents	IOC	SAS

79.	5	Weather information supports airport support operations including ramp operations, runway snow removal, aircraft de-icing, etc.		5	Executive Summary		Contents	Both	SAS
80.	6	Weather information supports increased coverage in airport obserivations and forecasts for non-towered and virtual towered airports		5	Executive Summary		Contents	IOC	SAS
81.	8	Weather information supports observation and forecasts of cosmic radiation levels on polar routes and potential interruption of communication and satellite navigation services.		5	Executive Summary		Contents	FOC	Non-SAS
82.	9	Weather information supports observations and forecasts for tracking chemical/biological/nuclear releases withiin the atmosphere ro support Homeland Security.		5	Executive Summary		Contents	FOC	Non-SAS
83.	10	Standard set of weather information available worldwide.		5	Section 2.1.1	What consists of the standard set? Who decided the set?	Contents	FOC	Non-SAS
84.	22	Weather observations are contained in the Cube and used by forecasting toolsets to produce forecasts for all users, which are also then integrated in the Cube		5	Section 2.4.2		Contents	Both	Both
85.	31	The Cube provides climatology information for long-range planning.		5	Section 2.7.3		Contents	FOC	Both
86.	33	NGATS provides a probability (confidence factor) as an element of forecast products.		5	Section 3.2		Contents	IOC	Both
87.	36	Weather information tailored for the NGATS automation is digital, gridded, and mosty probabilistic (especially after one hour)		5	Section 4.3		Contents	FOC	Both

88.	39	Data from automated gridded products, models, and human forecasts are distilled into a single official forecast.		5	Section 4.6	what is the "official" forecast based on?	Contents	IOC	SAS
89.	42	Weather information provided by private (non-government) vendors is integrated into the Cube only if purchased by public funds and made available to the public as part of the SAS.		5	Section 4.8		Contents	IOC	Both
90.	43	Weather information is described in four dimensions (x,y,z,t) and in terms of intensity and probability.		5	Section 5.1.1		Contents	IOC	Both
91.	44	Weather information (observations and forecasts) are developed to populate the Cube at required resolutions.		5	Section 5.1.1		Contents	IOC	Both
92.	46	Meterological forecasts ranging from 30 minutes to 6 hours are required for probabilistic traffic management.		5	Section 5.3.3		Contents	IOC	Both
93.	48	The weather information is highly tailored to a particular flight situation, this increasing the utility of the information and reducing the chance of misinterpretation.		5	Section 5.4.3		Contents	FOC	SAS
94.	50	Data from ground and ocean suface sources, manned aircraft, UASs, and atmosperic-sensing satellites, along with forecasts data are incorporated into the Cube.		5	Section 5.5		Contents	FOC	Both
95.	51	Observations from the aircraft are continuously broadcasted to provide updates for use by nearby aircraft and the Cube.		5	Section 5.5		Contents	FOC	Both
96.	1	Cube will support access to NWS NEXRAD Level III products (source - WARP access)		7	IOC Definition worksheet		Contents	IOC	TBD
97.	2	Cube will support access to NWS Lightning Data (source - TBD)		7	IOC Definition worksheet		Contents	IOC	TBD

98.	3	Cube will support access to MADIS data (source - TBD)		7	IOC Definition worksheet		Contents	IOC	TBD
99.	4	Cube will support access to NWS MDCRS EDR (turbulence) (Source - TBD)		7	IOC Definition worksheet		Contents	IOC	TBD
100.	5	Cube will support access to NWS TAFs (source - WFOs)		7	IOC Definition worksheet		Contents	IOC	TBD
101.	6	Cube will support access to NWS METARs and SPECIs (source - TBD)		7	IOC Definition worksheet		Contents	IOC	TBD
102.	7	Cube will support access to NWS SIGMETs (includes Convective SIGMET, Convective SIGMET Outlook, Oceanic SIGMET) (source - AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
103.	8	Cube will support access to NWS AIRMETs (source - AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
104.	9	Cube will support access to NWS G-AIRMETs (source - AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
105.	10	Cube will support access to NWS Collaborative Convective Weather Product (CCFP) (source - NCEP-AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
106.	11	Cube will support access to NWS Rapid Update Cycle (RUC), includes winds, temps (source - NCEP)		7	IOC Definition worksheet		Contents	IOC	TBD
107.	12	Cube will support access to NWS WRF Rapid Refresh, includes winds, temps (source - NCEP)		7	IOC Definition worksheet		Contents	IOC	TBD
108.	13	Cube will support access to NWS Hi-Res Rapid Refresh (HRRR), includes winds, temps (source - NCEP)		7	IOC Definition worksheet		Contents	IOC	TBD
109.	14	Cube will support access to NWS 1-12hr Graphical Turbulence Guidance (GTG) (source - TBD)		7	IOC Definition worksheet		Contents	IOC	TBD
110.	15	Cube will support access to NWS GTG (analysis) (source - TBD)		7	IOC Definition worksheet		Contents	IOC	TBD

111.	16	Cube will support access to NWS Forecast Icing Products (FIP) 1-12hr (Severity, probability, supercooled large droplets) (source - AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
112.	17	Cube will support access to NWS Current Icing Products (CIP) (Severity, probability, supercooled large droplets) (source - AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
113.	18	Cube will support access to NWS National Ceiling and Visibility (analysis) (source - AWC)		7	IOC Definition worksheet		Contents	IOC	TBD
114.	19	Cube will support access to NWS Global wind grids (source - NCEP)		7	IOC Definition worksheet		Contents	IOC	TBD
115.	20	Cube will support access to NWS NEXRAD Level II base data (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
116.	21	Cube will support access to NWS NEXRAD ROC Radar Data Quality Status (source - NEXRAD ROC)		7	IOC Definition worksheet		Contents	FOC	TBD
117.	22	Cube will support access to NWS Meteorological Satellite (METSAT) data (Source - NOAA Multi-satellite constellation of polar orbiters)		7	IOC Definition worksheet		Contents	FOC	TBD
118.	23	Cube will support access to NWS G-SIGMETs (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
119.	24	Cube will support access to NWS Surface Fronts (source HPC)		7	IOC Definition worksheet		Contents	FOC	TBD
120.	25	Cube will support access to NWS Meso-scale Boundaries (source-SPC)		7	IOC Definition worksheet		Contents	FOC	TBD
121.	26	Cube will support access to NWS 0-2 hour boundaries (source - Auto-Nowcaster, SPC)		7	IOC Definition worksheet		Contents	FOC	TBD
122.	27	Cube will support access to NWS 2-8 hour boundaries (source -)		7	IOC Definition worksheet		Contents	FOC	TBD
123.	28	Cube will support access to NWS 3-D Reflectivity (source - NSSL)		7	IOC Definition worksheet		Contents	FOC	TBD

124.	29	Cube will support access to NWS Center Weather Advisory (source - CWSU)		7	IOC Definition worksheet		Contents	FOC	TBD
125.	30	Cube will support access to NWS Meteorological Impact Statement (source - CWSU)		7	IOC Definition worksheet		Contents	FOC	TBD
126.	31	Cube will support access to NWS Localized Aviation MOS Program (LAMP) (source - NCEP)		7	IOC Definition worksheet		Contents	FOC	TBD
127.	32	Cube will support access to NWS Tropical Cyclone Bulletins (source - NCEP NHC)		7	IOC Definition worksheet		Contents	FOC	TBD
128.	33	Cube will support access to NWS Aviation Area Forecasts (FA) (source - NCEP AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
129.	34	Cube will support access to NWS Tornado Watch/Warning (source - WFO, NCEP SPC)		7	IOC Definition worksheet		Contents	FOC	TBD
130.	35	Cube will support access to NWS Severe Thunderstorm Watch/Warning (source - WFO, NCEP SPC)		7	IOC Definition worksheet		Contents	FOC	TBD
131.	36	Cube will support access to NWS Convective Outlook (includes severe thunderstorms, tornado, hail, damaging wind (source - WFO)		7	IOC Definition worksheet		Contents	FOC	TBD
132.	37	Cube will support access to NWS Non-convective watches, warnings, and advisories (e.g., heavy snow warning, freezing rain advisory) (source - WFO)		7	IOC Definition worksheet		Contents	FOC	TBD
133.	38	Cube will support access to NWS Freezing Level Analysis (source - NCEP AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
134.	39	Cube will support access to NWS Surface Analysis (source - NCEP AWC / HPC)		7	IOC Definition worksheet		Contents	FOC	TBD
135.	40	Cube will support access to NWS High Level SIG Wx (source - WAFC)		7	IOC Definition worksheet		Contents	FOC	TBD

136.	41	Cube will support access to NWS Mid Level SIG Wx (source - NCEP AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
137.	42	Cube will support access to NWS Low Level SIG Wx Charts (source - NCEP AWC / HPC)		7	IOC Definition worksheet		Contents	FOC	TBD
138.	43	Cube will support access to NWS Radar Report (includes Special Radar Report) (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
139.	44	Cube will support access to NWS Winds Aloft (Current and Forecast) (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
140.	45	Cube will support access to NWS Cb Tops (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
141.	46	Cube will support access to NWS Cb Extent (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
142.	47	Cube will support access to NWS Maximum and average Clear Air Turbulence (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
143.	48	Cube will support access to NWS Maximum and average In-cloud Turbulence (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
144.	49	Cube will support access to NWS Maximum and average Icing (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD
145.	50	Cube will support access to NWS National Convective Weather Forecast (NCWF) (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
146.	51	Cube will support access to NWS National Convective Weather Diagnostic (NCWD) (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
147.	52	Cube will support access to NWS 1-12hr Graphical Turbulence Guidance (GTG-2) (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
148.	53	Cube will support access to NWS GTG-N (analysis) (source - TBD)		7	IOC Definition worksheet		Contents	FOC	TBD
149.	54	Cube will support access to NWS National Ceiling and Visibility (forecast) (source - AWC)		7	IOC Definition worksheet		Contents	FOC	TBD

150.	55	Cube will support access to NWS NEXRAD Level-III Product - Hi-Res VIL (source - TBD)		7	NEXRAD Level III Products worsheet		Contents	FOC	TBD
151.	56	Cube will support access to NWS NEXRAD Level-III Product- Hi-Res Enhanced Echo Top (source - TBD)		7	NEXRAD Level III Products worsheet		Contents	FOC	TBD
152.	57	Cube will support access to NWS NEXRAD Level-III Products - Reflectivity (source - TBD)		7	NEXRAD Level III Products worsheet		Contents	FOC	TBD
153.	58	Cube will support access to NWS NEXRAD Level-III Products - Layer Comp Reflectivity (source - TBD)		7	NEXRAD Level III Products worsheet		Contents	FOC	TBD
154.	59	Cube will support access to NWS systems required to satisfy FSS needs (sources - TBD)		7	FSS Product Specifics worksheet	Need to analyze these in more detail	Contents	FOC	TBD
155.	14	The 4-D Wx Data Cube is composed of a wealth of text products, graphic products, and machine-readable products.		8	1.6.1		Contents	All	Both
156.	15	It contains proprietary products and those in the public domain, as well as domestic and foreign weather information		8	1.6.1		Contents	All	Both
157.	29	The SAS will manage an integrated, distributed virtual database of runway specific, airport specific, surface and above the surface, local, regional, nationwide, global and space weather information from many NAS and non-NAS sources		8	1.6.3		Contents	All	SAS
158.	20	Leverage Aviation Digital Data Service (ADDS) – an existing web service that displays important aviation information to users, but also has an existing infrastructure to support a WIDB		9	Sect 6		Contents	All	Both

159.	21	Leverage National Digital Forecast Database (NDFD) – an existing net-centric gridded database of high resolution surface-oriented NWS forecast products (using an approach which provides a consistent set of surface weather information)		9	Sect 6		Contents	All	Both
160.	22	Lverage National Operational Model Archive & Distribution System (NOMADS) – an existing web-services-based project providing both real-time and retrospective format independent access to climate and weather model data		9	Sect 6		Contents	All	Both
161.	23	Leverage NPOESS Data Expoitation (NDE) – an under-development repository for real-time NPOESS products, expected to become operational in the 2013 time frame		9	Sect 6		Contents	All	Both
162.	24	Leverage GOES-R Access Subsystem (GAS) – and under-development repository for real-time GOES-R-era products, expected to become operational in the 2015 time frame		9	Sect 6		Contents	All	Both
163.	25	Leverage Comprehensive Large Array Storage System (CLASS) – an operational archive system for numerous satellite products		9	Sect 6		Contents	All	Both
164.	26	Leverage Radar Server (e.g., existing level III [tgftp] server or level II server)		9	Sect 6		Contents	All	Both
165.	27	Leverage Advanced Weather Interactive Processing System (AWIPS) – the operational NWS system that, after migration and extension and enhancement will have data exchange capability		9	Sect 6		Contents	All	Both

166.	4	WIDB shall support automated generation of legacy aviation products (e.g., Significant Meteorological Information Bulletins (SIGMETs)), Terminal Aerodrome Forecast (TAFs), Airmen's Meteorological Bulletin (AIRMETs) from WIDB		11	Sect 1.0		Contents	All	Both
167.	15	At IOC, the WIDB shall provide support for the NWS Weather Forecast Offices, CWSUs, and the AWC to provide the initial set of weather and forecasts for users that would include NWP model output and data from observing systems		11	Sect 4.0		Contents	IOC	Both
168.	16	At IOC, the WIDB shall provide support for weather observations and information from FAA to begin to be implemented		11	Sect 4.0		Contents	IOC	Both
169.	17	At IOC, the WIDB shall provide support for gridded, text and graphical aviation meteorological products to be available for users, including weather watches, SIGMETs, and AIRMETS		11	Sect 4.0		Contents	IOC	Both
170.	20	WIDB shall provide access to the following observations, analyses and forecasts. All information must meet NextGen performance requirements.		11	Sect 8.0	1.1	Contents	IOC	Both
171.	21	WIDB shall provide access to TAFs		11	Sect 8.0	1.1.1	Contents	IOC	Both
172.	22	WIDB shall provide access to METARs and SPECIs		11	Sect 8.0	1.1.2	Contents	IOC	Both
173.	23	WIDB shall provide access to SIGMETs (includes Convective SIGMET, Convective SIGMET Outlook, Oceanic SIGMET)		11	Sect 8.0	1.1.3	Contents	IOC	Both
174.	24	WIDB shall provide access to AIRMETs		11	Sect 8.0	1.1.4	Contents	IOC	Both

175.	25	WIDB shall provide access to Rapid Update Cycle (RUC) model data, includes winds, temps		11	Sect 8.0	1.1.5	Contents	IOC	Both
176.	26	WIDB shall provide access to 0-9hr Graphical Turbulence Guidance (GTG)		11	Sect 8.0	1.1.6	Contents	IOC	Both
177.	27	WIDB shall provide access to GTG (analysis)		11	Sect 8.0	1.1.7	Contents	IOC	Both
178.	28	WIDB shall provide access to Forecast Icing Products (FIP) 0-9hr (Severity, probability, supercooled large droplets)		11	Sect 8.0	1.1.8	Contents	IOC	Both
179.	29	WIDB shall provide access to National Ceiling and Visibility (analysis)		11	Sect 8.0	1.1.9	Contents	IOC	Both
180.	30	WIDB shall provide access to other weather products listed in IOC products list defined as “Objective” as available		11	Sect 8.0	1.1.10	Contents	IOC	Both
181.	35	By Full Operational Capability, in 2022, all aviation relevant weather information shall be available to the WIDB		11	Sect 8.0	1.3	Contents	FOC	Both
182.	39	WIDB shall provide automated generation of legacy aviation products (e.g., Significant Meteorological Information Bulletins (SIGMETs)), Terminal Aerodrome Forecast (TAFs), Airmen’s Meteorological Bulletin (AIRMETs) from WIDB Data, if these products are required in 2022		11	Sect 8.0	1.3.3	Contents	FOC	Both
183.	12	IOC SAS goal of containing Airport surface observations (e.g., ASOS/AWOS data)		12	Pg 25		Contents	IOC	SAS
184.	13	IOC SAS goal of containing Collaborative Convective Forecast Product (CCFP) or replacement product authoritative source for convection		12	Pg 25		Contents	IOC	SAS

185.	14	IOC SAS goal of containing single gridded data set for forecast winds, pressure, and temperature aloft		12	Pg 25		Contents	IOC	SAS
186.	15	IOC SAS goal of containing weather radar information (WSR-88D, TDWR		12	Pg 25		Contents	IOC	SAS
187.	16	IOC SAS goal of containing lightning, wind shear, microburst data (Note: May be accessed directly, not through the SAS)		12	Pg 25		Contents	IOC	SAS
188.	16	Rapid updates of weather data used in TFM tools is essential to successful weather integration and therefore, the underlying infrastructure being developed for NextGen is key to the success of the weather integration effort		13	Sect 2.4		Contents	All	Both
189.	30	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 8 hours using WRF Rapid Refresh model data		13	Sect A-2.1.7		Contents	All	Both
190.	31	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 8 hours using TAFs		13	Sect A-2.1.7		Contents	All	Both
191.	32	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 8 hours using SIGMETS		13	Sect A-2.1.7		Contents	All	Both

192.	33	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 8 hours using AIRMETs		13	Sect A-2.1.7		Contents	All	Both
193.	34	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 8 hours using G-AIRMETs		13	Sect A-2.1.7		Contents	All	Both
194.	35	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide wind shift timing forecasts out to 1 hour using Terminal Winds Diagnostic		13	Sect A-2.1.7		Contents	All	Both
195.	39	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 1 hour using WRF Rapid Refresh model data		13	Sect A-2.1.7		Contents	All	Both
196.	40	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 1 hour using METARs		13	Sect A-2.1.7		Contents	All	Both
197.	41	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 1 hour using TAFs		13	Sect A-2.1.7		Contents	All	Both

198.	42	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 1 hour using SIGMETS		13	Sect A-2.1.7		Contents	All	Both
199.	43	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 1 hour using AIRMETs		13	Sect A-2.1.7		Contents	All	Both
200.	44	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to 1 hour using G-AIRMETs		13	Sect A-2.1.7		Contents	All	Both
201.	45	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide wind shift timing forecasts out to 1 hour using Terminal Winds Diagnostic		13	Sect A-2.1.7		Contents	All	Both
202.	49	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 1 hour using WRF Rapid Refresh model data		13	Sect A-2.2.8		Contents	All	Both
203.	50	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area temperature forecasts out to 1 hour using HRRR model data with a hourly update		13	Sect A-2.2.8		Contents	All	Both

204.	51	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area temperature forecasts out to 1 hour using RUC model data with a hourly update		13	Sect A-2.2.8		Contents	All	Both
205.	52	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area temperature forecasts out to 1 hour using WRF Rapid Refresh model data		13	Sect A-2.2.8		Contents	All	Both
206.	53	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide barometric pressure forecasts out to 1 hour using RUC model data		13	Sect A-2.2.8		Contents	All	Both
207.	54	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide inflight icing forecasts out to 1 hour using CIP		13	Sect A-2.2.8		Contents	All	Both
208.	55	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide inflight icing forecasts out to 1 hour using 1-9 hour FIP		13	Sect A-2.2.8		Contents	All	Both
209.	56	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide inflight icing turbulence out to 1 hour using Analysis and 1-12hr GTG		13	Sect A-2.2.8		Contents	All	Both

210.	57	To support Improve Operations to Closely Spaced Parallel Runways function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hour using METARs		13	Sect A-2.3.8		Contents	All	Both
211.	58	To support Improve Operations to Closely Spaced Parallel Runways function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hour using TAFs		13	Sect A-2.3.8		Contents	All	Both
212.	59	To support Improve Operations to Closely Spaced Parallel Runways function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hour using SIGMETS		13	Sect A-2.3.8		Contents	All	Both
213.	60	To support Improve Operations to Closely Spaced Parallel Runways function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hours using AIRMETs		13	Sect A-2.3.8		Contents	All	Both
214.	61	To support Improve Operations to Closely Spaced Parallel Runways function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hour using G-AIRMETs		13	Sect A-2.3.8		Contents	All	Both
215.	65	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to x hours using WRF Rapid Refresh model data		13	Sect A-2.4.8		Contents	All	Both
216.	66	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hours using TAFs		13	Sect A-2.4.8		Contents	All	Both

217.	67	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out tox hours using SIGMETS		13	Sect A-2.4.8		Contents	All	Both
218.	68	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hours using AIRMETs		13	Sect A-2.4.8		Contents	All	Both
219.	69	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide ceiling and visibility forecasts out to x hours using G-AIRMETs		13	Sect A-2.4.8		Contents	All	Both
220.	70	Sensors feeding the SAS shall include: Wind shear detection (e.g. LLWAS), ASR-WSP, TDWR, LIDAR, ASR-8/9/11, NEXRAD, F-420, DASI, ASOS, AWOS, AWSS, SAWS, NextGen Surface Observing which shall be networked and combined to form a common deconflicted weather source		13	Sect A-3.2.1		Contents	All	SAS
221.	72	Weather information required to support the integrated departure management process includes Nowcasts of airport weather conditions that affect runway usage and airport operations rates (storms, wind shear, wind shifts, winter precipitation, ceiling and visibility changes), in support of proactive replanning of surface operations so as to minimize runway throughput losses and recovery time when major weather changes occur		13	Sect A-4.3.1		Contents	All	Both

222.	73	Weather information required to support the integrated departure management process includes Nowcasts of weather conditions (temperature, precipitation rate and type) that affect de-icing holdover time		13	Sect A-4.3.1		Contents	All	Both
223.	74	Weather information required to support the integrated departure management process includes Nowcasts of weather conditions that affect gate and ramp operations (lightning, winter precipitation, intense precipitation or hail)		13	Sect A-4.3.1		Contents	All	Both
224.	75	Weather information required to support the integrated departure management process includes Accurate gridded wind data and short term forecasts (0-30 minutes) which should extend from the surface to flight level, with horizontal and vertical grid spacing to be established based on analysis of the trajectory modeling requirements, all in support of trajectory planning from the runway through the departure fixes and transition airspace		13	Sect A-4.3.1		Contents	All	Both
225.	76	Weather information required to support the integrated departure management process includes Highly reliable wind estimates (effectively measurements) and short-term forecasts (0-20 min) extending from the surface to approximately 1000’ AGL to support wind dependent wake turbulence departure procedures		13	Sect A-4.3.1		Contents	All	Both

226.	77	Weather information required to support the integrated departure management process includes Forecasts of convective parameters (intensity, height, turbulence) necessary to evaluate departure route availability and to assess the uncertainty associated with these evaluations		13	Sect A-4.3.1		Contents	All	Both
227.	78	Weather information required to support the integrated departure management process includes Diagnoses and forecasts of weather conditions that may change the rate and/or routes at which arrivals can be brought into the airport		13	Sect A-4.3.1		Contents	All	Both
228.	6	In NextGen, consistency and continuity in the common weather picture are ensured by centrally managed weather information that is distributed by the Government through the NextGen Network Enabled Weather (NNEW) “virtual database” capability		1	Sect 5.3.1		Data consistenc y	All	Both
229.	4	At least some portion of Cube must provide a common weather picture for NAS participants (SAS)		4	Sect 1.1.1	Multiple of other sources as well	Data consistenc y	All	SAS
230.	25	SAS will arbitrate or merge (fuse) multiple weather observations and forecasts into a 4D common weather picture available to all users		4	Sect 2.2		Data consistenc y	All	SAS
231.	7	Techniques can be developed to de-conflict the disparate observations, analyses, and forecasts contained acroos the Cube to achieve a common current and future state of the atmosphere for NextGen Air Traffic Management decision making.		6	Section 1.7.1.2.1		Data consistenc y	FOC	SAS

232.	9	Data and product consistency will be essential in order to meet the "common weather picture" objective		9	Sect 4		Data consistency	All	Both
233.	9	SAS at IOC may contain some inconsistencies between products (especially legacy products still in use at IOC		12	Pg 22		Data consistency	IOC	SAS
234.	19	The initial 4-D Wx SAS, a subset of the 4-D Weather Data Cube, provides a consistent, deconflicted common weather picture (e.g., observations, forecasts, and climatology, from the surface to the top of the NAS)		13	Sect 2.5		Data consistency	All	SAS
235.	17	Format Weather information for Storage functions - Cube should format data (eg. The reorganization and representation of information) for storage in compliance with established standards, guidelines, and conventions		4	Sect 1.1.2		Data formats	All	Both
236.	18	Cube will likely support a vast number of weather data formats		4	Sect 1.1.2		Data formats	All	Both
237.	19	SAS needs to support the formatting capability to convert only a relatively small number of fundamental weather data types such as text, grids, and likely others for storage		4	Sect 1.1.2		Data formats	All	SAS
238.	20	Support for various formats of weather data types will entail encoders and decoders that enable the ingest, storage and extraction of weather data		4	Sect 1.1.2		Data formats	All	Both

239.	35	Text and "hard" graphic products still required by the Federal Government or by international agreement (e.g., TAFs, METARs, and Volcanic Ash Graphics) will be formatted from the information in the 4-D Wx SAS, but will not be part of the 4-D Wx SAS		4	Sect 2.3	Text not part of SAS	Data formats	All	Non SAS
240.	36	Sensor observations in the 4-D Wx SAS are in machine-readable format		4	Sect 2.3		Data formats	All	SAS
241.	12	Weather information required for decisions are provided in a format compatible with the users needs.		5	Section 2.1.1		Data formats	Both	Both
242.	16	Weather information needed for decisions is provided in a form easily extracted and specifically formatted to the task or decision.		5	Section 2.2		Data formats	Both	Both
243.	38	Weather products include binary packages. GIS (Geographical Information System), XML, GRIB, BUFR.		5	Section 4.4		Data formats	IOC	Both
244.	12	SAS weather information is in a format ready for integration into aviation decision support systems		6	Section 1.7.1.2.2		Data formats	Both	SAS
245.	28	A standard set of metadata is essential to enable discovery and access to weather datasets and associated data access services.		6	Appendix C 2.3.4.1		Data formats	Both	Both
246.	32	Observations from a multitude of ground-based, airborne, and satellite sensors must meet common data standards and be net-enabled and included in the Cube in an architecture that permits fast retrieval		6	Appendix C 3.1.5		Data formats	IOC	Both

247.	28	Leverage Joint Metoc Brokered Language (JMBL) – an XML-based specification for a standard language that will broker the exchange of information between meteorological and oceanographic data providers and user applications		9	Sect 6		Data formats	All	Both
248.	31	Requires a standard "language" and building a central or distributed SOA service that talks via this common data exchange language and has access to all of our various data sources and can provide the requested data in a timely manner		9	Sect 6		Data formats	All	Both
249.	8	Ensure good technical integration with Global Systems Division (GSD) development of Joint METOC Broker Language (JMBL) server and system		10	Task 2		Data formats	All	Both
250.	12	Ensure good technical integration with Integrated Ocean Observing Systems project (IOOS)		10	Task 2		Data formats	All	Both
251.	14	Cube shall allow for the provision of current regulatory weather products (e.g., convective Significant Meteorological Information [SIGMETS]), while policy is changed to transition the NAS from a 'product' to an 'information' environment		13	Sect 2.3.3		Data formats	All	Both
252.	126	The Cube shall support the use case: Coarse-grained service-level security	Support ability to assign access levels to users	2	Sect 6.5.1		Data security	All	Both
253.	127	The Cube shall support the use case: Coarse-grained service-level security	Support assignment of access restrictions to specific data sets	2	Sect 6.5.1		Data security	All	Both
254.	128	The Cube shall support the use case: Coarse-grained service-level security	Support access to metadata for only those products a user is allowed access	2	Sect 6.5.1		Data security	All	Both

255.	129	The Cube shall support the use case: Coarse-grained service-level security	Enforce user access restrictions to data-sets	2	Sect 6.5.1		Data security	All	Both
256.	131	The Cube shall support the use case: Fine-grained dataset-level security	Support ability for service provider to assign access levels to users	2	Sect 6.5.2		Data security	All	Both
257.	132	The Cube shall support the use case: Fine-grained dataset-level security	Support ability of service provider to modify access levels to users	2	Sect 6.5.2		Data security	All	Both
258.	133	The Cube shall support the use case: Fine-grained dataset-level security	Support assignment of access restrictions to specific data sets	2	Sect 6.5.2		Data security	All	Both
259.	134	The Cube shall support the use case: Fine-grained dataset-level security	Support access to metadata for those products a user is allowed access to or could be allowed to access (e.g. a fee-based service)	2	Sect 6.5.2		Data security	All	Both
260.	135	The Cube shall support the use case: Fine-grained dataset-level security	Enforce user access restrictions to data-sets	2	Sect 6.5.2		Data security	All	Both
261.	83	The 4-D Weather SAS shall protect proprietary information on a limited basis.		4	Sect 4, Sect 5	Need to define "limited"	Data security	IOC	SAS
262.	84	The 4-D Weather SAS shall protect proprietary information.		4	Sect 4, Sect 5		Data security	MOC / FOC	SAS
263.	87	The 4-D Weather SAS shall provide security for weather information.		4	Sect 4, Sect 5		Data security	All	SAS
264.	100		The SAS should support the functionality in Appendix D to store and secure required weather information and should support those systems required to do so	4	Appendix D	Need detailed analysis to define specific systems / data / products that need to be included	Data security	All	SAS
265.	34	WIDB shall provide only SAS weather information to users who request it		11	Sect 8.0	1.2.3	Data security	IOC	SAS
266.	49	The IT instantiation of the WIDB shall provide message security with routing and guaranteed delivery		11	Sect 8.0	2.2.4	Data security	IOC	Both

267.	12	Store weather info functions - SAS should maintain electronic retention of 4-D meteorological information, including information such as sensor observations and gridded analyses and forecasts in an organized manner such that subsets can be individually retrieved		4	Sect 1.1.2		Data storage	All	SAS
268.	13	Store weather info functions - SAS should handle receipt of incoming meteorological information from the NextGen communications subsystem including ingest and storage functions.		4	Sect 1.1.2		Data storage	All	SAS
269.	62	The 4-D Weather SAS shall store weather observations and analyses for 18 hours.		4	Sect 4		Data storage	All	SAS
270.	63	The 4-D Weather SAS shall store only the last two scheduled forecast issuances, including all associated corrections and amendments.		4	Sect 4		Data storage	All	SAS
271.	118	The NextGen shall store weather information for less than 48 hours.		4	Appendix M		Data storage	FOC	Both
272.	119	The NextGen shall store weather information for longer than 48 hours.		4	Appendix M		Data storage	FOC	Both
273.	4	WIDB will enable the storage and retrieval of all digital weather information needed by NextGen		9	Sect 4		Data storage	All	Both
274.	8	The Cube shall support the use case: Incorporate new weather data product (e.g., convective weather, icing) into the 4 D Wx Data Cube	Allow mechanism to notify stakeholders (subset to all cube users) that new dataset is available	2	Sect 6.1.1.2		Discoverability	All	Both
275.	9	The Cube shall support the use case: Incorporate new weather data product (e.g., convective weather, icing) into the 4 D Wx Data Cube	Support means to incorporate metadata about new dataset	2	Sect 6.1.1.2		Discoverability	All	Both

276.	10	The Cube shall support the use case: Incorporate new weather data product (e.g., convective weather, icing) into the 4 D Wx Data Cube	Allow for catalog of / access to dataset metadata	2	Sect 6.1.1.2		Discoverability	All	Both
277.	11	The Cube shall support the use case: Incorporate new weather data product (e.g., convective weather, icing) into the 4 D Wx Data Cube	From catalog, allow access to dataset	2	Sect 6.1.1.2		Discoverability	All	Both
278.	13	The Cube shall support the use case: Discover data product and build data access client	Allow for query of registry for datasets of interest	2	Sect 6.1.2.1		Discoverability	All	Both
279.	14	The Cube shall support the use case: Discover data product and build data access client	Allow search and access of registry for software construction artifacts related to dataset use	2	Sect 6.1.2.1		Discoverability	All	Both
280.	16	The Cube shall support the use case: Discover data product and connect to data access service	Allow request for / access to list of products and associated fields available	2	Sect 6.1.2.2		Discoverability	All	Both
281.	17	The Cube shall support the use case: Discover data product and connect to data access service	Allow request for info on services capable of providing a desired dataset	2	Sect 6.1.2.2		Discoverability	All	Both
282.	55	The Cube shall support the use case: Obtain metadata meeting certain criteria	Allow request for desired metadata (eg, based on product, quality control criteria, service type, etc)	2	Sect 6.1.3.8		Discoverability	All	Both
283.	57	The Cube shall support the use case: Obtain metadata meeting certain criteria	Requested metadata fields are returned to requestor via desired exchange mechanism	2	Sect 6.1.3.8		Discoverability	All	Both
284.	89	The Cube shall support the use case: Adding a new data field to a non-critical weather data stream with minimal management overhead	Allow update to registry indicating change to available product, including format/service schema changes	2	Sect 6.2.1		Discoverability	All	Both
285.	92	The Cube shall support the use case: Adding a new data field to a non-critical weather data stream with minimal management overhead	Support means of notifying current users of changes to existing products	2	Sect 6.2.1		Discoverability	All	Both

286.	95	The Cube shall support the use case: Managed migration of clients to new service version	Support means of notifying current users of changes to existing products	2	Sect 6.2.2		Discoverability	All	Both
287.	97	The Cube shall support the use case: Managed migration of clients to new service version	Support means of notifying current users of expiration of legacy source for existing products	2	Sect 6.2.2		Discoverability	All	Both
288.	121	The Cube shall support the use case: Data center–level fault tolerance	Makes available access details for backup service provider / sources	2	Sect 6.4.3		Discoverability	All	Both
289.	182	The Cube shall support the pluggable use case: Specify filtered metadata	Support ability to request metadata on desired products, or sub products	2	Sect 7.5.2		Discoverability	All	Both
290.	48	Cube will provide for "Tagging" all data with metadata to enable discovery by known and unanticipated NextGen users		4	Sect 2.4		Discoverability	All	Both
291.	20	Scalable registry system to enable registration, exposure, and discovery of services and an associated repository to persist the metadata defining the addresses and interfaces of those services.		6	Appendix C 2.0		Discoverability	Both	Both
292.	26	Discovery is supported by one or more registries, where services publish their resource identifiers and expose the interfaces by which they may be invoked		6	Appendix C 2.3		Discoverability	Both	Both
293.	27	At least one registry/repository is required as a point of control and governance within the Cube SOA deployment.		6	Appendix C 2.3.4		Discoverability	Both	Both
294.	6	Cube will be a distributed, virtual system, not a single physical source		4	Sect 1.1.1	Multiple of other sources as well	Distributed	All	Both

295.	13	The 4-D Wx Data Cube is a virtual aggregation of all sources of meteorological, and aviation operational information that will contain a subset of all relevant "aviation weather" information (e.g., observations, forecasts, statistical views of observations and forecasts, automated gridded weather products, the outcome of algorithms, models, ensembles and constructs, climatological data, and human-produced forecasts from public and private sources)		8	1.6.1		Distributed	All	Both
296.	24	The entire SAS is not necessarily located on any single system or at any single location, but are available through a common data exchange environment		8	1.6.2		Distributed	All	SAS
297.	8	WIDB shall support a "Virtual" repository with no single physical database or computer, with a conceptually unified source distributed among multiple physical locations and suppliers		11	Sect 1.0		Distributed	All	Both
298.	2	Cube will allow weather to be directly integrated into sophisticated decision support capabilities to assist decisionmake		1	Executive Summary		DST integration	All	Both
299.	2	SAS portion of Cube shall facilitate the integration of weather information directly into operational decision support tools.		4	1. Introduction	Multiple of other sources as well	DST integration	All	SAS
300.	8	SAS shall support probabilistic decision aids		4	Sect 1.1.1		DST integration	All	SAS

301.	34	Users will access SAS weather information primarily through decision support systems, or view it through multi-purpose integrated display systems (in the early years through legacy stand-alone systems)		4	Sect 2.3		DST integration	All	SAS
302.	25	Improved weather information gets scanned in real time to produce hazard warnings	Daemons constantly scan incoming weather data for pre determined hazard levels and produces warnings when threshold value is reached.	5	Section 2.4.3		DST integration	Both	Both
303.	41	Weather products are viewed by the user through a user interface, preferably not a stand-alone weather interface, but within an ATS or flight navigation interface.		5	Section 4.7		DST integration	FOC	Both
304.	2	Enhanced tailored, probablistic weather information that has been translated and integrated into NAS automation and decision-support systems enables users and service providers to more precisely identify specific weather impacts on operations.		6	Section 1.5		DST integration	Both	Both
305.	5	Weather under NextGen will be assimilated into decisionmaking directly using digital, probabilistic weather information in automation platforms and decision support tools		8	1.2		DST integration	All	Both
306.	3	Cube shall support weather integration of forecasts for Traffic Flow Management planning function of the Trajectory Based Operations solution set that is (Strategic and national (or regional; including international) in scope, takes place 8-10+ hours from the expected operation, with the primary goal - risk assessment and probabilities		13	Sect 2.2		DST integration	All	Both

307.	4	Cube shall support weather integration of forecasts for Traffic Flow Management planning function of the Flexibility on the Terminal Environment solution set that is (Strategic and national (or regional; including international) in scope, takes place 8-10+ hours from the expected operation, with the primary goal - risk assessment and probabilities		13	Sect 2.2		DST integration	All	Both
308.	5	Cube shall support weather integration of forecasts for Traffic Flow Management planning function of the Increase Arrivals/Departures at High Density Airports solution set that is (Strategic and national (or regional; including international) in scope, takes place 8-10+ hours from the expected operation, with the primary goal - risk assessment and probabilities		13	Sect 2.2		DST integration	All	Both
309.	6	Cube shall support weather integration of forecasts for flow planning and AOC flight planning function of the Trajectory Based Operations solution set that is (Strategic and regional in scope, takes place 3-5 hours from the expected operation, with the primary goal - main planning		13	Sect 2.2		DST integration	All	Both
310.	7	Cube shall support weather integration of combination of short term forecasts and observations/reports execution of planning function of the Trajectory Based Operations solution set that is local strategi, for regional tactical in scope, takes place within 1-2 hours		13	Sect 2.2		DST integration	All	Both

311.	8	Cube shall support weather integration of nowcasts and reports/observations for tactical enroute operations of the Trajectory Based Operations solution set that addresses execution of flight specific adjustments that take place 0-40 minutes before the operation		13	Sect 2.2		DST integration	All	Both
312.	9	Cube shall support weather integration of nowcasts and reports/observations for tactical enroute operations function of the Flexibility on the Terminal Environment solution set that addresses execution of flight specific adjustments that take place 0-40 minutes before the operation		13	Sect 2.2		DST integration	All	Both
313.	10	Cube shall support weather integration of nowcasts and reports/observations for tactical enroute operations function of the Increase Arrivals/Departures at High Density Airports solution set that iaddresses execution of flight specific adjustments that take place 0-40 minutes before the operation		13	Sect 2.2		DST integration	All	Both
314.	11	Cube shall support weather integration of nowcasts and reports/observations for terminal operations function of the Flexibility on the Terminal Environment solution set that addresses execution of flight specific adjustments in arrival, departure, and terminal/facility operational window		13	Sect 2.2		DST integration	All	Both

315.	12	Cube shall support weather integration of nowcasts and reports/observations for terminal operations function of the Increase Arrivals/Departures at High Density Airports solution set that addresses execution of flight specific adjustments in arrival, departure, and terminal/facility operational window		13	Sect 2.2		DST integration	All	Both
316.	98		The SAS should support the functionality in Appendix D to acquire, collect, receive, update, integrate, analyze, and quantify required weather information and should support those systems required to do so	4	Appendix D	Need detailed analysis to define specific systems / data / products that need to be included	General	All	SAS
317.	99		The SAS should support the functionality in Appendix D to receive requests for, generate, format, and provide required weather information and should support those systems required to do so	4	Appendix D	Need detailed analysis to define specific systems / data / products that need to be included	General	All	SAS
318.	36	The 4-D Wx Data Cube may also push “in” constructs and model outcomes for the SAS to gather, deconflict, and array in a gridded manner correlated with existing SAS information		8	4.4		General	All	SAS
319.	3	The Cube shall support the use case: Define 4-D data cube domain for a community of interest	Allow selection of desired products to be included in domain	2	Sect 6.1.1.1		Governance	All	Both
320.	4	The Cube shall support the use case: Define 4-D data cube domain for a community of interest	Support ability to convey domain selection to governing entity	2	Sect 6.1.1.1		Governance	All	Both
321.	5	The Cube shall support the use case: Define 4-D data cube domain for a community of interest	Provide mechanism for governing entity to allow access to desired products for domain participants	2	Sect 6.1.1.1		Governance	All	Both

322.	6	The Cube shall support the use case: Define 4-D data cube domain for a community of interest	Allow for registering of domain definition	2	Sect 6.1.1.1		Governance	All	Both
323.	89	The 4-D Weather SAS shall manage business rules.		4	Sect 4, Sect 5		Governance	MOC / FOC	SAS
324.	13	SAS information is quality controlled by the appropriate and respective domain authority(s) and approved for use in ATM decisions and regulatory use		6	Section 1.7.1.2.2		Governance	Both	SAS
325.	19	Governance is a critical acitivity that spans multiple domains. Governance is applied to multiple levels with respect to the Cube.		6	Appendix C 1.3		Governance	Both	Both
326.	29	Ontology will provide semantically enhanced discovery of datasets. Mediation will provide the capability for translating CF weather data terms into JMBL terms and vice versa		6	Appendix C 2.3.5		Governance	Both	Both
327.	32	WIDB shall provide a set of rudimentary business rules designating SAS weather information		11	Sect 8.0	1.2.1	Governance	IOC	SAS
328.	24	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	System determines best forecast in response to request	2	Sect 6.1.3.1	Not sure what "best forecast" is meant to mean, and what part of "system" determines this forecast	Intelligent processing	All	Both
329.	25	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	System performs necessary time-interpolation scheme for discrete product field data (e.g., linear for continuous fields, match closest point for discontinuous fields, none for discrete fields, etc)	2	Sect 6.1.3.1	What part of system does this? (Requestor, source, some service between requestor and source?)	Intelligent processing	All	Both

330.	29	The Cube shall support the use case: Obtain or view weather hazards within a geometry in the past, present or future	System determines relevant hazard info	2	Sect 6.1.3.2	What system?	Intelligent processing	All	Both
331.	33	The Cube shall support the use case: Obtain or view most severe weather conditions within the vertical dimension for a corridor in the past, present or future.	The System determines the most severe weather conditions, derived from the best forecast data in a horizontal cross section for each corridor volume	2	Sect 6.1.3.3	What part of system does this? (Requestor, source, some service between requestor and source?). What determines best forecast data?	Intelligent processing	All	Both
332.	34	The Cube shall support the use case: Obtain or view most severe weather conditions within the vertical dimension for a corridor in the past, present or future.	System performs necessary time-interpolation scheme for discrete product field data (e.g., linear for continuous fields, match closest point for discontinuous fields, none for discrete fields, etc)	2	Sect 6.1.3.3		Intelligent processing	All	Both
333.	42	The Cube shall support the use case: View a time series or evolution of weather conditions (observations and forecast) and hazards	System determines best source to use in response to request	2	Sect 6.1.3.5		Intelligent processing	All	Both
334.	43	The Cube shall support the use case: View a time series or evolution of weather conditions (observations and forecast) and hazards	System performs necessary time-interpolation scheme for discrete product field data (e.g., linear for continuous fields, match closest point for discontinuous fields, none for discrete fields, etc)	2	Sect 6.1.3.5		Intelligent processing	All	Both
335.	44	The Cube shall support the use case: View a time series or evolution of weather conditions (observations and forecast) and hazards	System determines relevant hazard info	2	Sect 6.1.3.5		Intelligent processing	All	Both
336.	48	The Cube shall support the use case: Retrieve or view statistics (eg: min, max, sigma, mean) for product(s) within a geometry	System extracts required data and derives desired statistics	2	Sect 6.1.3.6	What system does this function?	Intelligent processing	All	Both

337.	52	The Cube shall support the use case: Retrieve/view quality control information in regards to a product for a geometry	System extracts required data and derives desired statistics	2	Sect 6.1.3.7	What system does this function? Not clear how this differs from Use case 6.1.3.6	Intelligent processing	All	Both
338.	78	The Cube shall support the use case: Obtain or view the best weather information that was available during a given time period in the past	System determines best source to use in response to request for the desired time period and at the specific time of a previous request	2	Sect 6.1.3.12		Intelligent processing	All	Both
339.	79	The Cube shall support the use case: Obtain or view the best weather information that was available during a given time period in the past	System performs necessary time-interpolation scheme for discrete product field data (e.g., linear for continuous fields, match closest point for discontinuous fields, none for discrete fields, etc)	2	Sect 6.1.3.12		Intelligent processing	All	Both
340.	80	The Cube shall support the use case: Obtain or view the best weather information that was available during a given time period in the past	System determines relevant hazard info	2	Sect 6.1.3.12		Intelligent processing	All	Both
341.	84	The Cube shall support the use case: Obtain or view the best weather information now available for a given time period in the past	System determines best source to use in response to request for the desired time period and available now	2	Sect 6.1.3.13		Intelligent processing	All	Both
342.	85	The Cube shall support the use case: Obtain or view the best weather information now available for a given time period in the past	System performs necessary time-interpolation scheme for discrete product field data (e.g., linear for continuous fields, match closest point for discontinuous fields, none for discrete fields, etc)	2	Sect 6.1.3.13		Intelligent processing	All	Both
343.	86	The Cube shall support the use case: Obtain or view the best weather information now available for a given time period in the past	System determines relevant hazard info	2	Sect 6.1.3.13		Intelligent processing	All	Both
344.	20	4-D weather is dynamically updated as needed and identify hazardous weather in real-time		5	Section 2.4		Intelligent processing	Both	Both

345.	24	Hazardous weather information identified and disseminated in real-time.		5	Section 2.4.3		Intelligent processing	Both	Both
346.	18	The 4-D Weather Data Cube (and later The 4-D Weather Single Authoritative Source (4-D Wx SAS)) will support enhanced volumetric extractions, by time frame of interest, of weather information by NAS users to quickly filter the enhanced weather content to the region of interest for impact analysis		13	Sect 2.5		Intelligent processing	All	Both
347.	14	NextGen weather data is collected, processed, forecast-fused, and distributed through a service-oriented architecture (SOA)-enabled government weather information capability. The underlying premise is that the various weather data are consistent		1	Sect 5.3.3		IT	All	Both
348.	34	Data Exchange Service Component - Support the interchange of information between multiple systems or applications; includes verification that transmitted data was received unaltered.	Cube should support the functionality associated with the Data Exchange service component definition	3	4.9 Appendix I		IT	All	Both
349.	47	The IT instantiation of the WIDB shall be built on a generic message protocol (XML)		11	Sect 8.0	2.2.2	IT	IOC	Both
350.	48	The IT instantiation of the WIDB shall support message queuing and scheduling		11	Sect 8.0	2.2.3	IT	IOC	Both
351.	1	Relevant weather information is retrieved by subscription or by query/response from the 4D Weather Data Cube using XML standard queries.		13	Sect 2.1		IT	All	Both

352.	69	The Cube shall support the use case: View weather products that were accessed by a specific user at a given time	Audit trail is created whenever certain data is accessed by a user	2	Sect 6.1.3.11	What data requires an audit trail to be created? How detailed must info captured as part of audit trail be?	Logging	All	Both
353.	70	The Cube shall support the use case: View weather products that were accessed by a specific user at a given time	Access to audit trail info is controlled	2	Sect 6.1.3.11		Logging	All	Both
354.	71	The Cube shall support the use case: View weather products that were accessed by a specific user at a given time	Allow request for audit trail of a previous requestor, for a desired time period, geometry, product.	2	Sect 6.1.3.11		Logging	All	Both
355.	72	The Cube shall support the use case: View weather products that were accessed by a specific user at a given time	Metadata about response provided to the previous requester are returned	2	Sect 6.1.3.11	How does system store all such past transactions and recreate them?	Logging	All	Both
356.	73	The Cube shall support the use case: View weather products that were accessed by a specific user at a given time	Actual responses provided to the previous requester are returned	2	Sect 6.1.3.11	How does system store all such past transactions and recreate them?	Logging	All	Both
357.	139	The Cube shall support the use case: Simple remote sensor integration into 4-D Wx Data Cube	Support ability to net-enable a sensor / data provider	2	Sect 6.7.1		Netcentric	All	Both
358.	140	The Cube shall support the use case: Simple remote sensor integration into 4-D Wx Data Cube	Support ability to create an edge server to handle scalable access to net-enabled sensor / data provider data	2	Sect 6.7.1		Netcentric	All	Both
359.	25	In keeping with the loosely-coupled SOA approach, some of those different formats and languages wil be accomodated within the Cube by software translators and adaptors while others will be replaced by more widely shared alternatives		6	Appendix C 2.2		Netcentric	FOC	Both

360.	18	Deployment of the system of federated data Registries within a services oriented architecture (SOA) that will be used to locate information in the various repositories		9	Sect 4		Netcentric	All	Both
361.	30	All data be available through a modern, net-centric, service oriented architecture (SOA), regardless of formats or source system protocols, etc		9	Sect 6		Netcentric	All	Both
362.	3	Architecture is to adhere to modern Services Oriented Architecture (SOA) principles and to assume a system of Systems approach		10	Task 2		Netcentric	All	Both
363.	41	WIDB data shall be stored in network-enabled data repositories which will be accessible to all aviation users through WIDB		11	Sect 8.0	1.3.4	Netcentric	FOC	Both
364.	45	The IT instantiation of the WIDB will be comprised of a Message Oriented Middleware (MOM) system of systems.		11	Sect 8.0	2.2	Netcentric	IOC	Both
365.	30	A robust IT Enterprise Security framework must be established to ensure data security and integrity for air traffic operations		6	Appendix C 2.4		Network security	Both	Both
366.	90	The Cube shall support the use case: Adding a new data field to a non-critical weather data stream with minimal management overhead	Limited to no noticable service access / delivery interuptions when updating existing products (e.g., less than 5 minute outage)	2	Sect 6.2.1		Performance	All	Both
367.	24	Cube data will have variable performance attributes, including accuracy, availability, statsticial reliability, consistency, refresh rates, and resolution in time and space		4	Sect 2.2		Performance	All	Both

368.	28	SAS information request response time will meet user-specified time requirements		4	Sect 2.3	Need more specific requirements in this area	Performance	All	SAS
369.	52	The refresh rate of forecasts in the SAS should support the operational needs called out in Table 4-1 for 1 hour, 3 hour and climatological forecasts.		4	Sect 4, Sect 5		Performance	IOC	SAS
370.	53	The refresh rate of forecasts in the SAS should support the operational needs called out in Table 4-1 for 10 min, 15 min, 1 hour, 3 hour and climatological forecasts.		4	Sect 4, Sect 5		Performance	MOC/ FOC	SAS
371.	54	The 4-D Weather SAS shall be continuously accessible to users with the specific latency requirements defined in Table 4-1 for each of the following applications: outside NAS, NAS, Terminal, 1 hour, 3 hour and climatological forecasts		4	Sect 4, Sect 5		Performance	IOC	SAS
372.	55	The 4-D Weather SAS shall be continuously accessible to users with the specific latency requirements defined in Table 4-1 for each of the following applications: outside NAS, NAS, Terminal, 10 min, 15 min, 1 hour, 3 hour and climatological forecasts		4	Sect 4, Sect 5		Performance	MOC/ FOC	SAS
373.	90	The 4-D Weather SAS shall make new information available to NEO capability within 10 seconds of receipt.		4	Sect 4, Sect 5		Performance	All	SAS
374.	17	Processing must preserve integrity of weather data.		5	Section 2.2.4	Include validation codes to ensure weather data validity?	Performance	Both	Both
375.	11	Cube will support "near-real time dissemination of weather information to all ground and air users"		8	1.4		Performance	All	Both

376.	26	Response time for SAS information requests (using efficient data compression techniques) must meet user-specified time requirements		8	1.6.2		Performance	All	SAS
377.	27	Refresh rates may differ according to the requirements for each data type and for airspace coverage demand		8	1.6.2		Performance	All	SAS
378.	37	Update period for certain surface observations shall be as defined in Table N-1a (summarized below) Terminal, convective - 1 min Terminal, all other - 5 min En route, convective - 2 min En route, all other - 5 min Global, convective - 10 min Global, all other - 20 min		8	4.5, Table N-1		Performance	All	Both
379.	38	Update period for certain surface observations shall be as defined in Table N-1a (summarized below) Terminal, convective - 1 min Terminal, all other - 1 min En route, convective - 2 min En route, all other - 5 min Global, convective - 10 min Global, all other - 15 min		8	4.5, Table N-1		Performance	All	Both

380.	39	Refresh rate and latency production timeline requirements for terminal forecasts shall be as defined in Table N-2b (summarized below): Forecast type Refresh rate Latency 0-2 hrs 5 min 5 min 2-4 hrs 10 min 5 min 4-10 hrs 30 min 30 min 10-24 hrs 3 hr 30 min 24-60 hrs 6 hr 60 min 60hrs - 14 days 24 hr 2 hr Long range Monthly 1 day		8	4.5, Table N-2b		Performance	All	Both

381.	40	Refresh rate and latency production timeline requirements for en route, convective forecasts shall be as defined in Table N-2b (summarized below): Forecast type Refresh rate Latency 0-2 hrs 10 min 5 min 2-4 hrs 30 min 30 min 4-10 hrs 60 min 30 min 10-24 hrs 3 hr 60 min 24-60 hrs 6 hr 90 min 60hrs - 14 days 24 hr 2 hr Long range Monthly 1 day		8	4.5, Table N-2b		Performance	All	Both

382.	41	Refresh rate and latency production timeline requirements for en route other wx forecasts shall be as defined in Table N-2b (summarized below): Forecast type Refresh rate Latency 0-2 hrs 30 min 30 min 2-4 hrs 30 min 30 min 4-10 hrs 60 min 30 min 10-24 hrs 3 hr 60 min 24-60 hrs 6 hr 90 min 60hrs - 14 days 24 hr 2 hr Long range Monthly 1 day		8	4.5, Table N-2b		Performance	All	Both

383.	42	Refresh rate and latency production timeline requirements for global forecasts shall be as defined in Table N-2b (summarized below): Forecast type Refresh rate Latency 0-2 hrs 3 hr 60 min 2-4 hrs 3 hr 60 min 4-10 hrs 3 hr 60 min 10-24 hrs 3 hr 2 hr 24-60 hrs 6 hr 2 hr 60hrs - 14 days 24 hr 2 hr Long range Monthly 1 day		8	4.5, Table N-2b		Performance	All	Both
384.	1	WIDB shall support access to observations, analyses, and forecasts with improved time and spatial resolution that meet NextGen Functional and Performance Requirement specifications		11	Sect 1.0		Performance	All	Both
385.	37	WIDB data shall include observations, analyses, and forecasts with improved time and spatial resolution that meet NextGen Functional and Performance Requirement specifications		11	Sect 8.0	1.3.1	Performance	FOC	Both
386.	43	The IT (information technology) infrastructure for WIDB shall meet NextGen IOC performance requirements		11	Sect 8.0	2.1.1	Performance	IOC	Both

387.	27	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 8 hours using terminal area winds diagnostics with a 30 minute update at 10 km, and 5 minute update at 2 km resolution		13	Sect A-2.1.7		Performance	All	Both
388.	28	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide forecasts out to 8 hours using HRRR model data with a hourly update		13	Sect A-2.1.7		Performance	All	Both
389.	29	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 8 hours using RUC model data with a hourly update		13	Sect A-2.1.7		Performance	All	Both
390.	36	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide terminal area winds forecasts out to 1 hour using Terminal Winds Diagnostic with a 30 minute update at 10 km, and 5 minute update at 2 km resolution		13	Sect A-2.1.7		Performance	All	Both
391.	37	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide forecasts out to 1 hour using HRRR model data with a hourly update		13	Sect A-2.1.7		Performance	All	Both

392.	38	To support Integrated Arrival/Departure Airspace Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 1 hour using RUC model data with a hourly update		13	Sect A-2.1.7		Performance	All	Both
393.	46	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area winds forecasts out to 1 hour using Terminal Winds Diagnostic with a 30 minute update at 10 km, and 5 minute update at 2 km resolution		13	Sect A-2.2.8		Performance	All	Both
394.	47	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area windforecasts out to 1 hour using HRRR model data with a hourly update		13	Sect A-2.2.8		Performance	All	Both
395.	48	To support Timebased Metering using RNP and RNAV route Assignments function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to 1 hour using RUC model data with a hourly update		13	Sect A-2.2.8		Performance	All	Both
396.	62	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to x hours using terminal area winds diagnostics with a 30 minute update at 10 km, and 5 minute update at 2 km resolution		13	Sect A-2.4.8		Performance	All	Both

397.	63	To support Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide forecasts out to x hours using HRRR model data with a hourly update		13	Sect A-2.4.8		Performance	All	Both
398.	64	To support Integrated Initial Surface Traffic Management function Mid-term Weather Needs, Cube shall provide terminal area wind forecasts out to x hours using RUC model data with a hourly update		13	Sect A-2.4.8		Performance	All	Both
399.	100	The Cube shall support the use case: High-priority, low-bandwidth weather data combined with medium priority, high-bandwidth, weather data	Support services with differing access Quality of Service (QOS) characteristics based on available bandwidth	2	Sect 6.3.1		QOS	All	Both
400.	101	The Cube shall support the use case: High-priority, low-bandwidth weather data combined with medium priority, high-bandwidth, weather data	Supports priority routing of requested products based on QOS	2	Sect 6.3.1		QOS	All	Both
401.	102	The Cube shall support the use case: High-priority, low-bandwidth weather data combined with medium priority, high-bandwidth, weather data	System supports ability for single requestor to request different products with different QOS requirements	2	Sect 6.3.1		QOS	All	Both
402.	104	The Cube shall support the use case: Medium-priority, high-bandwidth, weather data combined with low-priority, high-bandwidth weather data	Support services with differing access Quality of Service (QOS) characteristics based on available bandwidth	2	Sect 6.3.2		QOS	All	Both
403.	105	The Cube shall support the use case: Medium-priority, high-bandwidth, weather data combined with low-priority, high-bandwidth weather data	Supports priority routing of requested products based on QOS	2	Sect 6.3.2		QOS	All	Both

404.	106	The Cube shall support the use case: Medium-priority, high-bandwidth, weather data combined with low-priority, high-bandwidth weather data	System supports ability for single provider to delivery same products with different QOS requirements	2	Sect 6.3.2		QOS	All	Both
405.	108	The Cube shall support the use case: Scaleable data access service	Support ability for product provider to gracefully handle increased volume of requests (e.g, volume increases 10-fold)	2	Sect 6.3.3		QOS	All	Both
406.	110	The Cube shall support the use case: Scaleable data access service	Support ability for product provider to gracefully add increased resources to handle increased volume of requests	2	Sect 6.3.3		QOS	All	Both
407.	18	Performance based service allows there to be service tiers.		5	Section 2.3	Define performance bounds to create tiers.	QOS	Both	Both
408.	10	Some IOC SAS information may not be available to all due to limitation in connectivity and interfaces, e.g. may not achieve network enabled delivery of very high performance products such as wind shear alerts		12	Pg 23		QOS	IOC	SAS
409.	11	SAS at FOC shall provide complete accessibility but may still have dual paths for some very high performance products (engineering decision), but all SAS information available through network		12	Pg 23		QOS	FOC	SAS
410.	20	Some information may be accessed independent of the SAS due to stringent performance requirements (e.g., micro burst reports), and some high performance data may not be included in the SAS at IOC		12	Pg 7		QOS	IOC	SAS
411.	18	The Cube shall support the use case: Discover data product and connect to data access service	Access and obtain desired dataset from selected service	2	Sect 6.1.2.2		Request management	All	Both

412.	20	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	Allow for selection of desired mechanism to exchange requested info, to include: encoding, compression, data pull, data push, data subscribe, data unsubscribe	2	Sect 6.1.3.1		Request management	All	Both
413.	21	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	Allow for selection of desired geometry of interest, to include: a point, trajectory, vertical cross section, horizontal cross section, corridor, airway, or sector	2	Sect 6.1.3.1		Request management	All	Both
414.	22	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	Allow selection of desired time or time period in request	2	Sect 6.1.3.1		Request management	All	Both
415.	23	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	Allow selection of desired products or product fields, and non-default time interpolation scheme, as necessary, to be included in request	2	Sect 6.1.3.1		Request management	All	Both
416.	26	The Cube shall support the use case: Obtain or view weather conditions within a geometry in the past, present, or future	Requested observational (current and past data) and forecast products are collected based on request, time interpolated - if necessary, formatted, and returned to requestor via desired exchange mechanism	2	Sect 6.1.3.1	Does data source to processing, or just serve up the data and the requesting system does all the sophisticated interpolation, best weather determination?	Request management	All	Both
417.	28	The Cube shall support the use case: Obtain or view weather hazards within a geometry in the past, present or future	Allow request for hazardous weather conditions (defined by requestor or predefined?), for a given geometry, time, product	2	Sect 6.1.3.2	Does requestor define hazard or is it predefined?	Request management	All	Both
418.	30	The Cube shall support the use case: Obtain or view weather hazards within a geometry in the past, present or future	Requested hazard info is returned to requestor via desired exchange mechanism	2	Sect 6.1.3.2		Request management	All	Both

419.	32	The Cube shall support the use case: Obtain or view most severe weather conditions within the vertical dimension for a corridor in the past, present or future.	Allow request for most severe weather conditions, for a given corrider, time, and product	2	Sect 6.1.3.3		Request managem ent	All	Both
420.	35	The Cube shall support the use case: Obtain or view most severe weather conditions within the vertical dimension for a corridor in the past, present or future.	Requested observational (current and past data) and forecast products are collected based on request, time interpolated - if necessary, formatted, and returned to requestor via desired exchange mechanism	2	Sect 6.1.3.3		Request managem ent	All	Both
421.	37	The Cube shall support the use case: Obtain or view air traffic hazards and restrictions within a geometry for the past, present, or future	Allow request for hazardous weather and restrictions, for a given geometry, time	2	Sect 6.1.3.4	What/who defines hazard or restriction?	Request managem ent	All	Both
422.	39	The Cube shall support the use case: Obtain or view air traffic hazards and restrictions within a geometry for the past, present, or future	Requested hazard and restriction info is returned to requestor via desired exchange mechanism	2	Sect 6.1.3.4		Request managem ent	All	Both
423.	41	The Cube shall support the use case: View a time series or evolution of weather conditions (observations and forecast) and hazards	Allow request for weather conditions and hazards, for a given geometry, time, and product	2	Sect 6.1.3.5		Request managem ent	All	Both
424.	45	The Cube shall support the use case: View a time series or evolution of weather conditions (observations and forecast) and hazards	Requested observational (current and past data) and forecast products and hazard info are collected based on request, time interpolated - if necessary, formatted, and returned to requestor via desired exchange mechanism	2	Sect 6.1.3.5		Request managem ent	All	Both
425.	47	The Cube shall support the use case: Retrieve or view statistics (eg: min, max, sigma, mean) for product(s) within a geometry	Allow request for desired statistics for a given geometry, time period, product	2	Sect 6.1.3.6		Request managem ent	All	Both

426.	49	The Cube shall support the use case: Retrieve or view statistics (eg: min, max, sigma, mean) for product(s) within a geometry	Requested statistics and other useful info are returned, else an error is returned	2	Sect 6.1.3.6	What is useful info?	Request management	All	Both
427.	53	The Cube shall support the use case: Retrieve/view quality control information in regards to a product for a geometry	Requested statistics and other useful info are returned, else an error is returned	2	Sect 6.1.3.7	What is useful info?	Request management	All	Both
428.	75	The Cube shall support the use case: Obtain or view the best weather information that was available during a given time period in the past	Allow request for weather conditions, for a given geometry, time, and product	2	Sect 6.1.3.12		Request management	All	Both
429.	77	The Cube shall support the use case: Obtain or view the best weather information that was available during a given time period in the past	Allow request for weather conditions and hazards, for a given geometry, time and time period, and product	2	Sect 6.1.3.12		Request management	All	Both
430.	81	The Cube shall support the use case: Obtain or view the best weather information that was available during a given time period in the past	Requested combined observational and forecast products and hazard info are collected based on request, time interpolated - if necessary, formatted, and returned to requestor via desired exchange mechanism	2	Sect 6.1.3.12		Request management	All	Both
431.	83	The Cube shall support the use case: Obtain or view the best weather information now available for a given time period in the past	Allow request for weather conditions and hazards, for a given geometry, time and time period, and product	2	Sect 6.1.3.13		Request management	All	Both
432.	87	The Cube shall support the use case: Obtain or view the best weather information now available for a given time period in the past	Requested combined observational and forecast products and hazard info are collected based on request, time interpolated - if necessary, formatted, and returned to requestor via desired exchange mechanism	2	Sect 6.1.3.13	Complex system combining function of different data sets needs to be defined	Request management	All	Both
433.	145	The Cube shall support the pluggable use case: Specify point	Support defining a point by lat/long/altitude and radius or distance (or station)	2	Sect 7.1.1		Request management	All	Both

434.	146	The Cube shall support the pluggable use case: Specify point	Support defining location using variety of measures (meters, flight level, miles, pressure, etc)	2	Sect 7.1.1		Request management	All	Both
435.	148	The Cube shall support the pluggable use case: Specify trajectory	Support definition of trajectory via numerous methods, including: waypoints (including stations), altitides, use of Great Circle and Euclidean geometry identifiers,	2	Sect 7.1.2		Request management	All	Both
436.	150	The Cube shall support the pluggable use case: Specify vertical cross section	Support definition of cross section by trajectory and vertical range	2	Sect 7.1.3		Request management	All	Both
437.	151	The Cube shall support the pluggable use case: Specify vertical cross section	Support cross section definition by lat or long, or via two (XY) corner points	2	Sect 7.1.3		Request management	All	Both
438.	153	The Cube shall support the pluggable use case: Specify horizontal cross section	Support definition of cross section by trajectory and lateral range	2	Sect 7.1.4		Request management	All	Both
439.	154	The Cube shall support the pluggable use case: Specify horizontal cross section	Support lateral range definition by single altitude, or 2-4 points describing cross section	2	Sect 7.1.4		Request management	All	Both
440.	156	The Cube shall support the pluggable use case: Specify corridor	Support definition of corridor by trajectory and lateral and vertical deltas	2	Sect 7.1.5		Request management	All	Both
441.	157	The Cube shall support the pluggable use case: Specify corridor	Allow for default deltas of surface to 88,000 ft and some default (e.g, ± 50 miles) in horizontal range	2	Sect 7.1.5		Request management	All	Both
442.	159	The Cube shall support the pluggable use case: Specify airway	Support ability to define well known and custom airways to select from	2	Sect 7.1.6		Request management	All	Both
443.	161	The Cube shall support the pluggable use case: Specify sector	Support ability to define well known and custom sectors to select from	2	Sect 7.1.7		Request management	All	Both
444.	163	The Cube shall support the pluggable use case: Specify time instant	Support definition of time by past, current, or future time instant	2	Sect 7.2.1		Request management	All	Both
445.	165	The Cube shall support the pluggable use case: Specify regular time period	Support definition of regular time interval or repeating time interval	2	Sect 7.2.2		Request management	All	Both

446.	167	The Cube shall support the pluggable use case: Specify product type	Support selection of products and/or fields of interest	2	Sect 7.3.1		Request management	All	Both
447.	169	The Cube shall support the pluggable use case: Specify product quality	Support selection of desired quality of product when product quality may vary	2	Sect 7.3.2		Request management	All	Both
448.	172	The Cube shall support the pluggable use case: Specify data pull (request data via pull)	Support ability for requestor to make request for data (including constraints)	2	Sect 7.4.2		Request management	All	Both
449.	173	The Cube shall support the pluggable use case: Specify data pull (request data via pull)	Support ability for handling request for data (including constraints) and returning reply	2	Sect 7.4.2		Request management	All	Both
450.	14	Manage Weather SAS functions - SAS should handle the provision of outgoing meteorological information to the NextGen communications subsystem, including data access, possible formatting (for disemination), and output queuing		4	Sect 1.1.2		Request management	All	SAS
451.	86	The 4-D Weather SAS shall prepare weather information for communication with user.		4	Sect 4, Sect 5		Request management	MOC / FOC	SAS
452.	6	The Cube will provide data for that data domain in which a user or decision support tool has requested data and the user is authorized to receive that data.		6	Section 1.7.1.1		Request management	FOC	Both
453.	12	WIDB shall support messaging services (including publish-and-subscribe as well as request-and-reply protocols)		11	Sect 2.0		Request management	All	Both
454.	18	At IOC, the WIDB shall provide support for pilots, flight planners, and other aviation users to have the capability to “pull” weather information for their applications		11	Sect 4.0		Request management	IOC	Both
455.	44	WIDB data shall be capable of being pushed to known users and pulled by others, as needed		11	Sect 8.0	2.1.2	Request management	IOC	Both

456.	50	The IT instantiation of the WIDB shall allow remote mechanisms to submit and receive messages		11	Sect 8.0	2.2.5	Request management	IOC	Both
457.	11	Federal weather domain authority will determine which observations will be available in the SAS and which data from the Cube will be integrated to create the SAS analysis and forecasts		4	Sect 1.1.1		SAS determination	All	SAS
458.	31	WIDB shall contain a set of information designated as the Single Authoritative Source (SAS) of weather information for air traffic operations		11	Sect 8.0	1.2	SAS determination	IOC	SAS
459.	18	SAS is hosted on many servers around the US that is specified by metadata tag as SAS data		12	Pg 6		SAS determination	IOC	SAS
460.	34	The capability to have rudimentary SAS of aviation weather information for use by Air Traffic Managers and systems is desired by IOC.		6	Appendix 4.0		Schedule	IOC	Both
461.	1	The WIDB will have a limited capability for NextGen Initial Operational Capacity (IOC) in 2013		10	Task 2		Schedule	IOC	Both
462.	2	The WIDB will have full operational capability in 2022		10	Task 2		Schedule	All	Both
463.	4	Information sharing among users is standardized with controlled exchange structure and services		6	Section 1.7.1.1		Shared access	Both	Both
464.	11	SAS information is available to all NAS participants via network enabled mechanisms, under open and unrestricted data rights		6	Section 1.7.1.2.1		Shared access	Both	SAS
465.	2	SAS shall be accessible to all		12	Pg 3		Shared access	FOC	SAS

466.	12	Other weather information such as alerts, advisories, and warnings regarding significant weather changes are proactively published to stakeholders via digital communications		1	Sect 5.3.2		Subscription management	All	Both
467.	59	The Cube shall support the use case: Basic filtered data subscription	Allow request for a subscription for given geometry, time (now to future), product	2	Sect 6.1.3.9		Subscription Management	All	Both
468.	60	The Cube shall support the use case: Basic filtered data subscription	System creates standing request for requested subscription data	2	Sect 6.1.3.9		Subscription Management	All	Both
469.	61	The Cube shall support the use case: Basic filtered data subscription	Data is accessed, filtered, and requested current data is returned to requestor via desired exchange mechanism	2	Sect 6.1.3.9		Subscription Management	All	Both
470.	62	The Cube shall support the use case: Basic filtered data subscription	Updated requested data is returned to requestor via desired exchange mechanism based on subscription criteria (when new data warrants it, periodically?)	2	Sect 6.1.3.9		Subscription Management	All	Both
471.	64	The Cube shall support the use case: Filtered data subscription with initial history	Allow request for a subscription for given geometry, time (into past), product	2	Sect 6.1.3.10		Subscription Management	All	Both
472.	65	The Cube shall support the use case: Filtered data subscription with initial history	System creates standing request for requested subscription data	2	Sect 6.1.3.10		Subscription Management	All	Both
473.	66	The Cube shall support the use case: Filtered data subscription with initial history	Data is accessed, filtered, and requested data (which includes current and historical data) is returned to requestor via desired exchange mechanism	2	Sect 6.1.3.10		Subscription Management	All	Both
474.	67	The Cube shall support the use case: Filtered data subscription with initial history	Updated requested data is returned to requestor via desired exchange mechanism based on subscription criteria (when new data warrants it, periodically?)	2	Sect 6.1.3.10		Subscription Management	All	Both

475.	175	The Cube shall support the pluggable use case: Specify data push (push data to subscriber)	Support monitoring to determine when subscribed to data becomes updated or time triggers warrant a subscription push	2	Sect 7.4.3		Subscription Management	All	Both
476.	176	The Cube shall support the pluggable use case: Specify data push (push data to subscriber)	Support ability to send subscribed to data to required destinations based on subscription details	2	Sect 7.4.3		Subscription Management	All	Both
477.	177	The Cube shall support the pluggable use case: Specify data push (push data to subscriber)	Support ability to send notification of data readiness to subscriber (in place of actual subscription data)	2	Sect 7.4.3		Subscription Management	All	Both
478.	179	The Cube shall support the pluggable use case: Specify data subscribe (subscriber to future data)	Support ability for subscriber to request subscription, providing subscription details, including expiration date, delivery destination, data of interest, exchange mechanism, etc	2	Sect 7.4.4		Subscription Management	All	Both
479.	15	Manage Weather SAS functions - SAS should support outgoing data flow in response to scheduled "data pushes" or to external user data requests		4	Sect 1.1.2		Subscription management	All	SAS
480.	76	The 4-D Weather SAS shall manage subscriptions.		4	Sect 4, Sect 5		Subscription management	MOC / FOC	SAS
481.	13	Weather alerts and amendments to safety critical weather information are pushed to known/identified users or notifications are published to unknown/unidentified users.		5	Section 2.1.1		Subscription management	Both	Both
482.	15	WIDB will push information to users on a subscription-type basis, and these deliveries could be time or weather-threshold based		9	Sect 4		Subscription management	All	Both
483.	51	The IT instantiation of the WIDB shall allow publishers and subscribers to register and interact without knowing about each other.		11	Sect 8.0	2.2.6	Subscription management	IOC	Both

484.	25	4D weather Cube shall provide DSTs weather information updates when parameter thresholds they define are reached		13	Sect A-2.1.5		Subscription management	All	Both
485.	109	The Cube shall support the use case: Scaleable data access service	Support ability to monitor and log service load and usage	2	Sect 6.3.3		System management	All	Both
486.	112	The Cube shall support the use case: Subsystem-level software fault tolerance	Service provider systems self monitor for correct software operation and report and log error conditions	2	Sect 6.4.1		System management	All	Both
487.	113	The Cube shall support the use case: Subsystem-level software fault tolerance	Service provider systems self monitor for correct software operation and restarts if failure is detected, logging event	2	Sect 6.4.1		System management	All	Both
488.	114	The Cube shall support the use case: Subsystem-level software fault tolerance	Service provider system traps condition causing error to allow for recreation of problem	2	Sect 6.4.1		System management	All	Both
489.	116	The Cube shall support the use case: Subsystem-level hardware fault tolerance	Service provider systems self monitor for correct HW operation and report and log error conditions	2	Sect 6.4.2		System management	All	Both
490.	117	The Cube shall support the use case: Subsystem-level hardware fault tolerance	Service provider systems self monitor for correct HW operation and restarts if failure is detected, logging event	2	Sect 6.4.2		System management	All	Both
491.	118	The Cube shall support the use case: Subsystem-level hardware fault tolerance	Environmental conditions at time of error is logged to allow for isolation of problem	2	Sect 6.4.2		System management	All	Both
492.	122	The Cube shall support the use case: Data center–level fault tolerance	Support ability for requestor to modify source of service provider data if primary source becomes unavailable	2	Sect 6.4.3		System management	All	Both
493.	123	The Cube shall support the use case: Data center–level fault tolerance	Supports data requestors to automatically switch to backup service provider / source, if one exists	2	Sect 6.4.3		System management	All	Both
494.	137	The Cube shall support the use case: Fault monitoring trend analysis and maintenance prioritization	Service provider systems self monitor for correct HW operation and report and log error conditions	2	Sect 6.6.1		System management	All	Both

495.	37	Monitoring Service Component - Defines the set of capabilities that observe, detect, or record the health, quality, availability, performance, etc. of supporting operational environments, systems, services, processes, etc. against predefined measurement indicators.	Cube should support the functionality associated with the Monitoring service component definition	3	4.9 Appendix I		System Management	All	Both
496.	16	Manage Weather SAS functions - SAS should support the management of the system, administration, and ancillary functions (e.g., hardware and software maintenance, monitoring, security, back/failover/redundancy)		4	Sect 1.1.2		System management	All	SAS
497.	45	Each agency will manage its own weather information access infrastructure		4	Sect 2.4		System management	All	Both
498.	29	Key limitation to consider - Meteorologist oversight of automated products - The NextGen Weather Concept of Operations calls for a Meteorologist In (or Over) the Loop (MITL) to ensure the accuracy and reliability of automated data		9	Sect 6		Users	All	Both
499.	40	WIDB shall include the capability for meteorologist intervention in the generation of automatic forecast information		11	Sect 8.0	1.3.3	Users	FOC	Both
500.	51	The Cube shall support the use case: Retrieve/view quality control information in regards to a product for a geometry	Allow request for desired quality control info for a given geometry, time period, product	2	Sect 6.1.3.7		Verification	All	Both
501.	108	The NextGen shall quality control weather observations.		4	Appendix M		Verification	FOC	Both
502.	14	Weather information that populates the Cube are certified to be valid.		5	Section 2.1.1		Verification	FOC	Both

503.	30	The SAS will also provide internal quality control information such as current skill verification scores as to how well SAS forecasts did match observations		8	1.6.3		Verification	All	SAS