

ICAO Meteorological Exchange Model (IWXXM)

- Extensible* Markup Language (XML)
 - ✦ XML emphasize simplicity, generality and usability across the internet and applications
 - ✦ Is a markup language which defines a set of rules for encoding documents
- Defined by free open standards
 - ✦ International Organization for Standardization (ISO)
 - ✦ Open Geospatial Consortium (OGC)

IWXXM Status

- IWXXM version 3.0 to be implemented March 2019
- ICAO Annex 3
 - November 2016, Amendment 77
 - ✦ Allows the exchange of IWXXM products as ***'recommended'*** practice
 - November 2020 Amendment 79
 - ✦ Will make the [International] exchange of IWXXM products a ***'mandatory'*** practice

IWXXM Status

- Products include:
 - ✦ TAF
 - ✦ METAR & SPECI
 - ✦ SIGMET
 - ✦ AIRMET
 - ✦ Volcanic Ash Advisory
 - ✦ Tropical Cyclone Advisory
 - ✦ *Space Wx
 - » Effective November 2018
 - ✦ SIGWX
 - » “Test” status by 2021, Operational 2022
 - ✦ **Future – Data centric rather than Product Centric**



Why IWXXM?

- Why would we move from a 1-2 line TAC METAR to a 5-page IWXXM METAR?
 - ✦ Enables a commonality across the aviation system domains (e.g., weather, flight, and aeronautical information)
 - ✦ Allows the geographic position and time of information to be easily integrated with multiple systems
 - ✦ Supports ‘modernization’ of MET information
 - Higher resolution met information
 - User-definable visualization and integration
 - Modern/future communications infrastructure
 - ✦ *Separates the **exchange** of the information from the **use** of the information



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Next**GEN**

Why IWXXM

- Essentially makes information “digital”
 - ✦ Supports multiple uses, applications, and integration
 - Unlike BUFR or GRIB; follows International Standards
- TAC supports human reading only
- IWXXM supports multiple formats & uses
 - ✦ Digital (machine to machine)
 - Flight planning systems
 - Integration with AWIPS, NWP, NDFD, etc.
 - Graphical output
 - SIGWX, CCFP
 - ✦ Mapping integration
 - Google maps, GPS



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Text output/Human consumption

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IWXXM Is a Key Enabler of SWIM Concepts

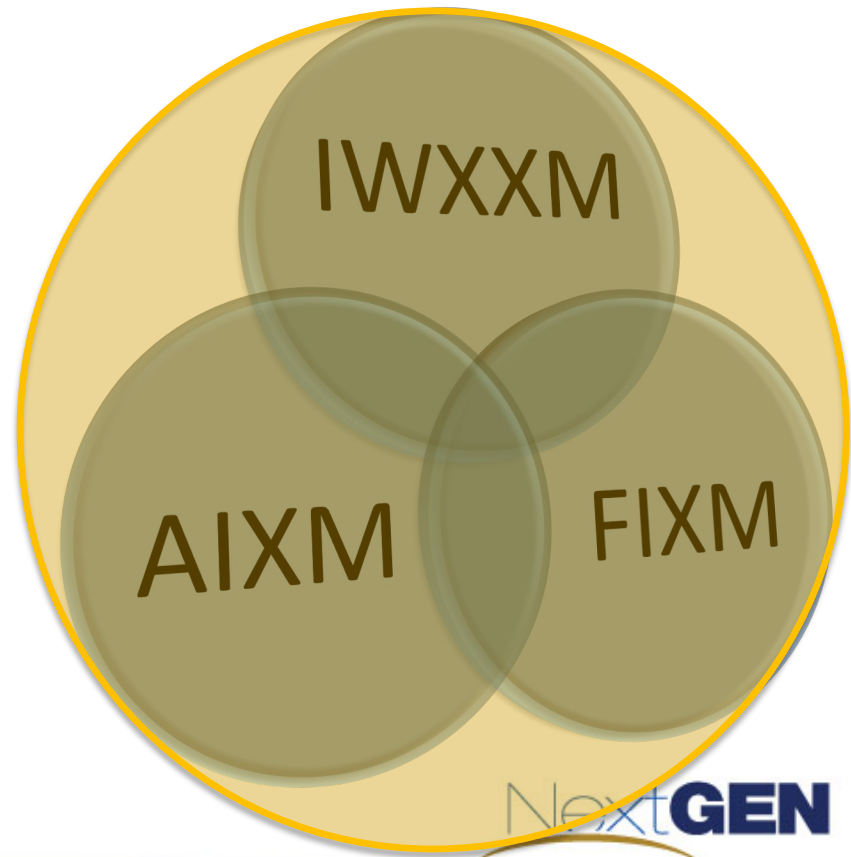
- ✦ SWIM core services will enable systems
 - Request and receive information when needed
 - Subscriptions for automatic receipt
 - Publishing information & services as appropriate

- ✦ One of three information sets used by aviation

- Aeronautical Information (AIXM)
 - ✦ Routes, Aerodromes, FIRs
 - ✦ Traffic, Traffic Management
 - ✦ NOTAM
 - ✦ Airspace Restrictions
- Flight Information (FIXM)
 - ✦ Flight Plan
 - ✦ Aircraft type/performance
 - ✦ Route preferences
- Weather Information (IWXXM)



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Next**GEN**

SWIM

- SWIM
 - ✦ One standard “connection” that uses universal programming language across all data
 - ✦ In the past, a new connection was created every time someone wanted to access a set of data
- SWIM allows more efficient data sharing among aviation stakeholders
 - ✦ Streamlines connections among different systems; can access multiple systems through one connection
 - ✦ SWIM utilizes standard data formats nationally and globally

System Wide Information Management

Definition

