

Presented to 2019 Space Weather Workshop Boulder, Colorado April 2, 2019 Status of ICAO Space Weather Information

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Administration

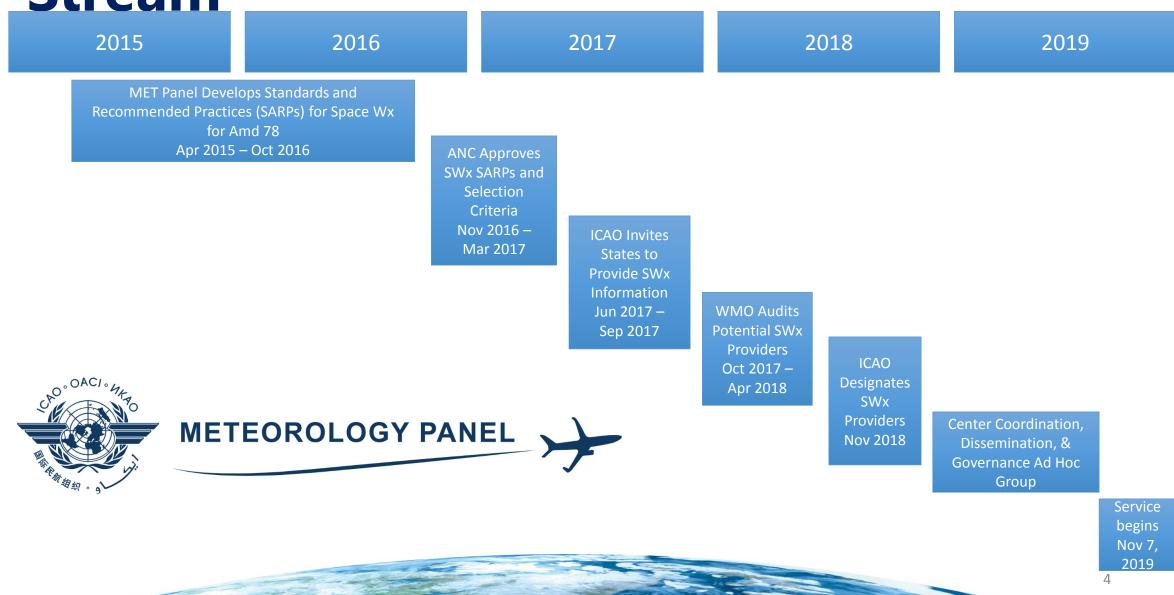
#### Overview

- ICAO Meteorology Panel
- Background of ICAO Space Weather Provision
- Status of ICAO Space Weather Provision
- Designated ICAO Space Weather Centers
- Space Weather Manual
- New Regulations?
- Summary
- Point of Contact

# ICAO Meteorology Panel (METP)

- A technical body of qualified experts
- Established by ICAO's Air Navigation Commission (ANC)
- Responsible for development and maintenance of standards, recommended practices and procedures for meteorological service for international air navigation
- METP reports directly to the ANC
- Consistent with the work program of the METP and other ICAO Panels, METP meetings review, discuss and formulate recommendations and decisions on a broad spectrum of technical areas concerning aeronautical meteorological service provision including space weather

#### Background - Space Weather Work Stream



# Background

- Phases to designate ICAO Space Weather Provider(s)/Center(s)
  - ICAO issued State Letter AN 10/1-IND/17/11 on Jun 9, 2017 requesting States to provide a formal expression of interest in providing the space weather information service
  - WMO conducted an audit of all States and consortia that indicated a formal interest
    - Audit against criteria developed by MET Panel (accepted by ANC)
    - Did not asses the 'quality' of meeting criteria
    - Did not make a judgment (e.g., ranking) of States only reported results of States' meeting or not meeting the identified criteria
- ICAO Council selects/designates States to provide Space Weather Annex 3 products in Nov 2018
  - Based on 'optimum number' recommended by METP
  - Based on WMO audit results
  - Based on 'other' considerations

| nternational<br>Sivil Aviation<br>Organization   | Organisation<br>de l'aviation civile<br>internationale  | Organización<br>de Aviación Civil<br>Internacional  | Междуна родная<br>организация<br>граждан окой<br>авиации  | منظمة الطيران<br>المدني الدولي  | 国 际 民 用<br>航 空 组 织  |
|--|---|---|---|---|---|
| Tel.: +1 51  | 4-954-8219 ext. 67  | 17  |   |   |   |
| Ref.: AN 1   | 0/1-IND/17/11   |   |   | 9 June 2017   |   |
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### **Status of Provision**

- Annex 3 to the Convention on International Civil Aviation, "Meteorological Service for International Air Navigation" Amendment 78
  - Adopted 2016
  - Effective Nov 8, 2018\*
  - Issue advisories for
    - HF Voice/Data & Satellite Communications
    - Radiation Exposure to Crew & Passengers
    - GNSS Based Navigation & Surveillance

\*Yes, we are technically late, but ICAO did not make center selections until Nov 2018. Implementation underway



Sixteenth Edition July 2007

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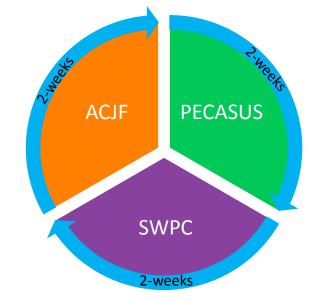
### **ICAO Centers**

- Designated ICAO Centers
  - Three Global Consortiums are considered one center
    - PECASUS (European consortium lead by Finland)
      - Finland
      - United Kingdom
      - Germany
      - Austria
      - Poland
      - Italy
      - Netherlands
      - Belgium
      - Cyprus
    - ACJF (Australia, Canada, Japan, France)
    - NOAA SWPC (United States)
  - Two Regional
    - China/Russia Consortium
    - South Africa

\*Numbers do not reflect ranking or order All centers equal in their designation

#### **ICAO Centers**

- Global Centers working to meet Annex 3 Global provision → operational Nov 7, 2019
- One 'On Duty' Center at any given time
  - Two-week rotation
  - 'On Duty' Center issues all advisories
  - Centers coordinate and collaborate continually
  - Other two centers ready for 1st and 2nd backup
- Regional Centers operational by 2022
  - Sooner if feasible



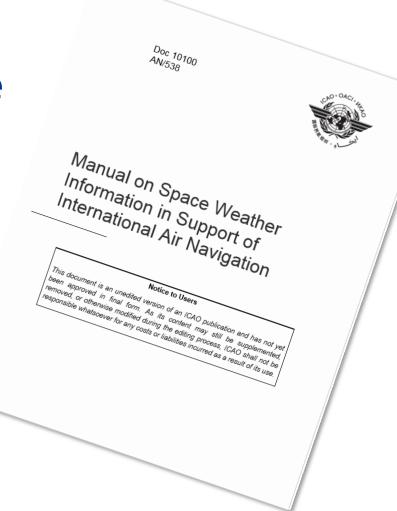
## **ICAO Centers**

- SWPC and other countries have produced space weather information for years
  - Not necessarily specific to aviation needs and decisions
- ICAO Annex 3 Space Weather Advisories intended to meet the needs of 192 ICAO member States, and over 200 airlines globally
  - Provides a standardized product and service
  - Can be supplemented with more detailed space weather information as needed

# **Space Weather Manual**

- Space Weather Manual V1.0 available soon
  - V2.0 Dec 2020
- Other Guidance Material
  - Center Rotation & Operations
  - Advisory Interpretation and Use

https://www.icao.int/airnavigation/METP/Panel%20Documents /Doc.10100.Space%20Weather%20Manual%20FINAL%20DRAFT %20Version.pdf



# **United States Regulations**

- FAA not planning any new regulations, or changes to current regulations around ICAO Space Weather Advisories
- How individual airlines use Space Weather Information can be defined in their Operations Specifications



# Summary

- Described ICAO METP function
- Discussed the background and status of the ICAO Space Weather Provision
- Reviewed and described the status of the three global and two regional ICAO Space Weather Centers
- Updated the status of the Space Weather Manual
- Noted the FAA is not planning to introduce and new regulations

# **For More Information**

- FAA Point of Contact
  - Pat Murphy
  - <u>michael.murphy@faa.gov</u>
  - Manager, Policy & Requirements Branch, Aviation Weather Division, FAA, NextGen
  - U.S. Member to ICAO Meteorology Panel (METP)
    - Rapporteur to METP WG-Meteorological Information Service
      Development
      - Coordinator for Space Weather Work Stream, METP, WG-MISD