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| WEATHER CLIMATE WATER | **World Meteorological Organization**  **COMMISSION FOR OBSERVATION, INFRASTRUCTURE AND INFORMATION SYSTEMS**  **First Session (Third Part)** 12 to 16 April 2021, Virtual Session | **INFCOM-1(III)/Doc. 5.1.1(7)** |
| Submitted by: Secretary-General  9.IV.2021  **DRAFT 2** |

***[All editorial changes related to the correction of acronym  
have been made by the Secretariat]***

**AGENDA ITEM 5: TECHNICAL REGULATIONS AND OTHER TECHNICAL DECISIONS**

**AGENDA ITEM 5.1: Recommendations from INFCOM Standing Committees and Study Groups**

***AGENDA ITEM 5.1.1: Standing Committee on Earth Observing Systems and Monitoring Networks (SC‑ON)***

# PLAN FOR A GLOBAL DEMONSTRATION PROJECT ON UNCREWED AIRCRAFT SYSTEMS (UAS) USE IN OPERATIONAL METEOROLOGY

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| **Summary** | |
| Reference: | N/A |
| Strategic Objective: | 2.1, 4.2, 4.3 |
| Recommended by: | SC-ON, SC-MINT |
| Recommended for: | Adoption without debate  Adoption with debate |
| Financial implications: | Operating Plan 2021, Output 2.1.02 |
| Content: | 1 Decision |
| Related INF(s): | N/A |
| Main changes to previous version: | *Editorial correction of acronym; proposed changes by Australia.* |

# DRAFT DECISION

## Draft Decision 5.1.1(7)/1 (INFCOM-1(III))

### Plan for a Global Demonstration Project on Uncrewed Aircraft Systems (UAS) Use in Operational Meteorology

**The Commission for Observation, Infrastructure and Information Systems** **decides** to endorse the further development and scoping of a WMO-coordinated global demonstration project on the utilization of Uncrewed Aircraft Systems (UAS) in support of the provision of observations for operational meteorological and hydrological applications;

**Requests** the Standing Committee on Earth Observing Systems and Monitoring Networks (SC‑ON) and Standing Committee on Measurements, Instrumentation and Traceability (SC‑MINT) to consult with the relevant WMO constituent bodies and working groups, international organizations, research institutions, private entities and others to formulate a proposal and plan for this activity, based on the concept provided in the [annex](#annex) and to be presented to the commission for approval at its next session.

See the [annex](#_Annex_to_draft) to the present decision.

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Decision justification:

Following the WMO Workshop on Use of Unmanned Aerial Vehicles (UAV) for Operational Meteorology, 2-4 July 2019, Toulouse, France and the development of a related publication for the Bulletin of the American Meteorological Society (BAMS) on the status of UAV and their developing potential to contribute to operational meteorology, the INFCOM Joint Expert Team on Aircraft-Based Observing Systems proposes for WMO to coordinate a global demonstration project on this technology in the coming 3-4 year period.

The conceptual outline presented in the [annex](#annex) below should be used as a basis only for the INFCOM to further develop the concept and scope and a proposed plan for WMO and the INFCOM to coordinate a global demonstration project on UAS.

Note that it is proposed to promote the term “Uncrewed Aircraft Systems” for this project and in the future.

## Annex to draft Decision 5.1.1(7)/1 (INFCOM-1(III))

## Concept Outline for a Global Demonstration Project on Uncrewed Aircraft Systems (UAS) Use in Operational Meteorology

### 1. Summary

It is proposed that WMO will coordinate a global demonstration project on the utility and efficacy of Uncrewed Aircraft Systems (UAS) to routinely and operationally contribute to the WMO Integrated Global Observing System (WIGOS) Global Basic Observing Network (GBON) in support of WMO forecasting and other applications.

### 2. Aims

(1) To demonstrate current capabilities of a range of UAS systems and to measure their capacity to contribute to meeting operational requirements for upper-air observations of the WIGOS GBON;

(2) To determine and analyse the impacts, benefits and disadvantages of UAS systems and observations derived from them; *[Egypt]*

(3) To demonstrate the capacity of UASs and their data processing systems to provide data in an interoperable state ready for use by relevant applications and to determine related future requirements for operational readiness;

(4) To determine existing requirements for improvement to UAS systems to adequately meet requirements to contribute operationally to WIGOS; and

(5) To determine and make recommendations relating to regulatory conditions imposed on UASs that impact their ability to contribute to WIGOS.

### 3. Scope

The demonstration would run over one or more significant periods of time within a one-year period in order to enable assessment of impacts and performance over varying seasonal weather and operating conditions.

The project would seek to involve and include as wide a range as possible of candidate UAS systems that have the potential to contribute to operational meteorology, for which several key requirements would be specified.

The project would involve contributors from both the public and private sectors and seek to collaborate with researchers and developers in the field of UAS deployment and operation for meteorological and hydrological operational forecasting application.

It is expected that this would exclude longer-term climate and environmental monitoring applications for UAS.

The demonstration project would include the following aspects relating to UAS operations, data delivery and data use:

1. Continuous and routine operation of systems over the project observations period(s);
2. Near-real-time delivery of data to a central repository in prescribed interoperational formats;
3. Use of UAS data by stakeholder data users and applications, and implementation and operation of data assessment practices during the observations period(s);
4. Ongoing data quality assessment throughout and following the observations period(s);
5. Provision of assessment reports by contributing data users;
6. Provision of assessment reports by contributing UAS operators that include indicative capital and operational costs, environmental impacts and, if possible, comparison with existing balloon borne sondes systems *[Australia]*;
7. Provision of assessment reports by stakeholder air-space regulatory bodies; and
8. Identification of mechanisms for transmission and receiving of UAS data for use by Members. [Egypt]

The UAS deployments would be expected to include where possible the following locations and sites:

1. Urban;
2. Rural and remote;
3. Coastal and oceanic;
4. Mountain;
5. Cryosphere.

### 4. Coordinating Partners

1. WMO Infrastructure Commission and relevant Standing Committees and working groups;
2. WMO Services Commission and relevant Standing Committees and working groups;
3. WMO Research Board.

### 5. Other Stakeholders & Contributors

1. ICAO;
2. IATA;
3. Civil Aviation Associations and ANSPs.

### 6. Participating Partners & Entities

1. NMHS UAS operators;
2. Research institutions;
3. UAS manufacturers and developers;
4. Third party UAS operators;
5. Instrument Testbed operators;
6. WMO Information System centres;
7. Global data centres;
8. NMHS data users.

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