International Civil Aviation Organization
CAR/SAM Regional Planning and Implementation Group (GREPECAS)

INFORMATION PAPER

GREPECAS/22 — IP/17
27/09/24

Fourth GREPECAS–RASG-PA Joint Meeting and
Twenty-second Meeting of the CAR/SAM Regional Planning and Implementation Group (GREPECAS/22)
Virtual Phase (Asynchronous, 16 September to 11 October 2024)
In-Person Phase (Lima, Peru, 20 to 22 November 2024)

Agenda Item 12: Other Business

HARMONIZING UNMANNED AIRCRAFT OPERATIONS OVER THE HIGH SEAS

(Presented by the United States)

EXECUTIVE SUMMARY

This paper recognizes the impact of the evolving use of unmanned aircraft systems (UAS) in operations over the high seas. Evolving concepts since 2018 include new UAS flight operations, such as inspections of offshore platforms, finding fish, monitoring the environment, and conducting search and rescue operations. ICAO Member States have a strong desire to conduct these operations using risk-based operational safety measures to meet their safety assurance responsibilities in the near-term and on an enduring basis.

ICAO, States and Regional Safety Oversight Organizations (RSOOs) need to coordinate and collaborate with industry and other Stakeholders to promote the safe, globally harmonized integration of these UAS operations. A two-step approach is to collaborate to draft and then adopt a resolution for the 42nd Session of the ICAO Assembly that recognizes mitigations needed to address safety risks and then work to modify the existing ICAO Standards and Recommended Practices (SARPs) and guidance material to incorporate the adopted risk mitigation framework in all appropriate Annexes. Consideration also needs to be given to effective and appropriate interim arrangements.

Strategic Objectives:	• Safety • Air Navigation Capacity and Efficiency
References:	• ***

1. Introduction

1.1 The evolving use of UAS is one example of how changes in aviation technology, concepts and tools disrupt the aviation system. UAS operations have risks to other aircraft, and persons and property on the ground that States can manage through established safety management practices. States can then document established risk management in all appropriate areas of their regulations. ICAO's Model UAS Regulations offer model language for States to facilitate the establishment of UAS

regulations, which States may adapt, as appropriate, to meet their specific needs in their sovereign airspace.

1.2 UAS operations over the high seas, or beyond 12 nautical miles from the State's baseline, provide a different case because the *Convention on International Civil Aviation* (Doc 7300) requires States to comply with the Articles of the Convention, and with Annex 2 – *Rules of the Air*, without any differences. This provision recognizes that high seas airspace is not under the sovereignty of any State. High seas airspace is a shared resource that ICAO and States must manage collaboratively to meet common airspace safety and efficiency needs.

1.3 Recommendation 5.2/1, stemming from the 13th Air Navigation Conference (AN-Conf/13), directed ICAO to "develop a solution to enable States to authorize operations of non-certificated UAS over the high seas, using parameters to be defined in a transparent manner, including investigating the maximum altitude at which these operations would be allowed." In February 2020, ICAO established the Secretariat Study Group on Legal Issues for Pilotless Aircraft (SSG-LIPA) to provide an interface between ICAO's legal and technical work on pilotless aircraft. In April 2024, the Air Navigation Commission asked the Advanced Air Mobility Study Group (AAM SG) to include UAS operations over the high seas in the holistic vision this group is developing.

1.4 States should expect interest in the use of UAS over the high seas to increase as a means to inspect offshore platforms, find fish, monitor the environment, and to search for and rescue people. The actions proposed in this paper support the theme of this Conference to meet long-term global aspirational goal (LTAG) obligations by facilitating evolving technologies.

2. DISCUSSION

2.1 The pace of change in aviation continues to challenge the current pace of regulatory developments in States and SARP development at ICAO. Some States have adapted to this new tempo of change using waivers, exemptions, or other approvals to enable safe initial domestic operations that inform later regulatory developments based on the initial operational experience. States work closely with industry to base their waivers and exemptions on safety risk management from established safety management processes. Potential risks for new and novel aircraft and operations are identified and addressed with an initial set of risk mitigations that are sometimes conservative. As States gain operational experience, the set of risk mitigations evolves based on operational experience and some risk mitigations become less conservative. States may also use lessons learned from initial operations to permit a broader range of operations given a greater understanding of risk.

2.2 For many years, both industry and States have expressed interest in UAS operations over the high seas. They have been working together to apply the same regulatory philosophy described above, beginning with an operational concept and a set of risk mitigations that manages the ground (or surface) and air risk for initial operations to a low level. Limiting initial operations to lower-risk scenarios (e.g., visual line of sight (VLOS) and limited beyond visual line of sight (BVLOS)) may help manage risks to enable initial harmonized operations. Both industry and States expect to leverage experience from initial operations to inform future safety risk management analyses that enable additional operations under a revised set of mitigations.

2.3 High seas airspace is a shared resource and aviation safety is a shared goal. High seas airspace is not under the sovereignty of any State. States need to work together to exchange all relevant safety risk management ideas and operational expertise to enable initial UAS operations over the high

seas. They must also work with their respective legal experts to make sure all proposals are consistent with the *Convention on International Civil Aviation* and its Annexes. Once a significant number of States have agreed on an initial set of operations and risk mitigations, they should explore all appropriate methods to gain agreement from all States. This may include proposals presented during high-level ICAO meetings, such as the upcoming 42nd Session of the ICAO Assembly. Consideration should also be given to the development of appropriate and lawful interim arrangements.

2.4 The need for development of standards for UAS high seas operations is increasing each year. The United States and other States have requested ICAO undertake this work since 2018. Absent harmonized standards, States face increasing operational and economic pressures to develop national solutions that may conflict with the foundational principles of the Convention and the high seas operations of other States. Rogue operators are incentivized more and more to provide UAS services without State authorization or oversight. The lack of agreed standards prevents UAS high seas operations to enhance safety in areas such as inspections of offshore infrastructure where harmful and sometimes fatal injuries to workers can be prevented.

2.5 ICAO can support innovation in this area by continuing to promote and expand the sharing of best practices of States, leveraging existing data sharing, cooperation, and assistance mechanisms. ICAO can also support States by continuing to share developments in the SSG-LIPA and the AAM SG, with a particular view in the first instance to the identification of tenable legal bases on which appropriate interim arrangements can rest. ICAO can assist States with advice on how to share ideas for risk management and the lawful conduct of initial UAS operations over the high seas and how to seek State approval for any specific proposals at triennial Assemblies.

— END —