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## STATUS OF AN UPDATE TO THELONG-TERM PLAN FOR AERONAUTICAL METEOROLOGY

### Background

In 2019, the Eighteenth World Meteorological Congress, through [Resolution 28 (Cg-18)](https://library.wmo.int/doc_num.php?explnum_id=9827#page=109), endorsed the publication of a first edition of a Long-Term Plan for Aeronautical Meteorology (LTP-AeM). The production of the long-term plan stemmed from work undertaken by the Commission for Aeronautical Meteorology (CAeM). Congress agreed that the long-term plan should be a living document that is kept under regular review and periodic update to ensure a high degree of alignment with the Strategic Plan of WMO and the Global Air Navigation Plan (GANP) of the International Civil Aviation Organization (ICAO).

The first edition of the Long-Term Plan for Aeronautical Meteorology is available as [WMO Publication AeM SERIES No. 5](https://library.wmo.int/index.php?lvl=notice_display&id=21476) (English only).

The intent of the long-term plan is to provide a framework upon which aeronautical meteorological service providers of WMO Members in particular, and the broader meteorology and aviation communities in general, can plan a transformation from a conventional ‘product-centric’ approach to a modern ‘information-centric’ approach through to 2030 and beyond. As such, the long-term plan pays due regard to sector-wide air transport progress envisaged over the coming decade or more and is complementary to ICAO’s GANP. This is necessary to ensure that, as ICAO’s vision for a globally interoperable, harmonized air traffic management system of the future becomes fully realized, developments on the WMO side can and will occur in unison.

The long-term plan offers a vision, a rolling strategy that will assist WMO, its Members and its partners to ensure that aeronautical meteorological service provision evolves in a manner that harnesses scientific and technological advancement, from service providers and from consumers. The long-term plan considers the implications that a projected increased growth in air traffic and a changing climate would have, not only on aviation users’ needs for meteorological information services, but also on the actual meteorological service provision that is to be supplied nationally, regionally and globally.

Taken as a whole, if appropriately implemented and adequately resourced, the developments outlined in the long-term plan offer the potential to better serve the needs and expectations of international civil aviation over the next decade and beyond and thereby ensure that WMO and its Members remain as integral, credible and relevant components of the global air navigation system.

### Latest developments

Since the publication of the first edition of the Long-Term Plan for Aeronautical Meteorology in 2019, the world has witnessed the onset of the Coronavirus (COVID-19) pandemic. Aviation has been one of a multitude of sectors severely negatively impacted by the pandemic. Consumer demand for commercial air travel fell dramatically in 2020. Subsequent recovery in 2021 and 2022 has been gradual and often irregular. The global economic downturn caused by the pandemic has had a ripple effect throughout the aviation supply chain, including the requirements for and the provision of aeronautical meteorological services.

Following the first meeting of the Standing Committee for Services for Aviation ([SC-AVI-1](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi)) in December 2020, the Standing Committee sought to respond to the request of Congress that the long-term plan be kept under review and, where necessary, updated. For example, in 2021, SC-AVI established a Task Team on the update to the Long-Term Plan for Aeronautical Meteorology (TT-LTP), comprising one expert from each of the six WMO regions. The purpose of TT-LTP was to assist SC-AVI in the preparation of an update to the long-term plan for submission to the Services Commission (SERCOM) in 2022 and then Congress or Executive Council in 2023.

At the second meeting of the Standing Committee for Services for Aviation ([SC-AVI-2](https://community.wmo.int/activity-areas/aviation/reports/final-reports#sc-avi)) in March/April 2022, the Standing Committee received a report on progress by TT-LTP. While some progress had been made by TT-LTP, the Standing Committee considered there was a need to take a more detailed look at how the long-term plan should be restructured and rewritten to ensure that it was appropriately and necessarily responsive to the medium and long-term impacts of global events such as the pandemic and climate change. Indeed, the Standing Committee considered some of the many influencing factors to the current and future provision of aeronautical meteorological services, including:

* Investment in the global weather enterprise
* Recovery from the COVID-19 pandemic
* The aviation industry’s demand for seamless, high-quality, georeferenced, digitized meteorological information on a worldwide basis
* Global drive for environmental sustainability
* Advances in science and technology (for example high resolution, ensemble prediction systems, artificial intelligence, machine learning and nowcasting systems)
* Future role(s) of aeronautical meteorological personnel

Furthermore, the Standing Committee recognized that in the future, it was likely that a smaller number of WMO Members would be required to deliver every component of aeronautical meteorological service delivery.

### Next steps

Following SC-AVI-2 and taking into account feedback obtained during and since the meeting, the Thematic Coordinators for Strategy and Governance within SC-AVI have been leading the development of a draft framework to inform the second edition of the Long-Term Plan for Aeronautical Meteorology. The second edition is due to be finalized in time for consideration at the third meeting of the Standing Committee on Services for Aviation (SC-AVI-3) in late 2023 and then the third session of the Services Commission (SERCOM-3) in early 2024.

An illustration of the potential new structure and content of the long-term plan is given in [Table 1](#_Table_1._Illustration).

It is to be determined whether the update to the long-term plan will simply be subject to endorsement/approval by SERCOM-3 in 2024 prior to publication or whether the Executive Council or Extraordinary Congress in 2024 or 2025 will be involved in the final endorsement/ approval process. Either way, it is anticipated that the second edition of the Long-Term Plan for Aeronautical Meteorology will be published by WMO before the end of 2025.

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### Table 1. Illustration of the potential new structure and content of the Long-Term Plan for Aeronautical Meteorology.

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| **Section title** | **Content**  |
| Introduction/Background | * Overview of changes from 2019 version
* Industry recovery following the COVID-19 pandemic
* Summary of industry needs with respect to global standards, quality, and information services
* Environmental sustainability considerations
* Diverse motivation among WMO Members for service provision to aviation
* Globalization of the meteorological enterprise
* Service delivery transformation and evolving role of aeronautical meteorological personnel
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| Future of aeronautical meteorology service provision | * Advances in science and technology, and subsequent design of meteorological information
* Industry requirement for global, digitized, high resolution datasets as a foundation of meteorological service delivery
* Evolving role of humans and machines in the delivery of meteorological services and, specifically, decision-making processes
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| Changing roles of aeronautical meteorological service providers | * Evolution of competency requirements and related training and development
	+ - * Contributions to seamless suite of services
* Acknowledgement that service delivery will vary across service providers, with some providers opting to exit their aeronautical meteorological programme
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| Transition to future state (road map) | * Consumer engagement
* Rapid cycle service development and delivery
* Automation of aviation weather forecasts (quantities) and observations
* Human expertise shifting to qualities such as interpretation, limitations, likelihood, impacts
* Focus areas for additional, continued and improved services
* Need for integration and interoperability
* Role of aviation meteorological service providers along continuum from global to local with focus on relationships
* Guidance for aviation meteorological service providers to undertake transition
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| Conclusion | * + - * Shift from national to regional focus for sustainable aviation meteorological service provision
			* Existing aeronautical meteorological services providers are ideally placed to work with stakeholders to modernize aeronautical meteorological services
* WMO will demonstrate continuing relevance to the aviation industry
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