

## Closing Remarks for the 3<sup>rd</sup> ICAO/UNOOSA Aerospace Symposium

- Madame Director, Distinguished Guests, Ladies and Gentlemen
- It has indeed been a very informative and rich discussions for 3 days.
- Much was presented, and clearly this subject is quite complex.
- As I mentioned in the opening, I have, together with my two colleagues from the Air Navigation Commission listened carefully with a focus on identifying the real issues so that I can better understand the most effective role the Commission may consider to make this sector a reality.
- It will take more learning by myself and aviation regulators in general, but here are some preliminary observations.
- One, there are many existing interface issues between airspace and outer space including, space and air law (difference of recognition of sovereignty, where is a boundary of responsibility between air and space, different liability concept, different mechanism of development of international standards, etc), Not only the differences of legal framework, some operational challenges are observed including, management of space debris (how to share these hazardous information), segregation of traffic or a need to create Space Traffic Management, space weather information, protection of frequency spectrum for including existing frequency and additional frequency for communication between spaceplanes and air traffic controllers, utilization of ground facilities, cybersecurity, and application of safety management.
- Two, there is technology in very advanced stages of development that will be looking for regulatory approvals of some kind - licensing, certification. First, acceptable level of risk needs to be carefully considered for spaceplane, considering impact to crew and passengers and third parties as well as other aircraft and other spaceplane. Then risk-based performance standards need to be developed in order that spaceplane operation can be more

predictable and transparent for all stakeholders. I believe that these approach will also facilitate fair competition among industry and further technical development in this new area. We should keep in mind that over regulations should not kill this young industry.

- Three, there is a very large demand for launches and rapid increase (4.39% annually), and the market is moving from the State to the private sector. This implies that we need to start considering international standards and recommended practices (SARPs) right now, otherwise, it becomes far more difficult to make harmonization of regulations among States, and risk can't be properly mitigated and it prevents efficient operations for both civil aircraft and spaceplane.
- Four, these operations will need to be internationalized in order to be sustainable. The needs for space traffic management and its integration between STM and ATM, better data sharing mechanism, separation standards, contingency procedures, cybersecurity and frequency spectrum.
- Five, there is an increased demand of using existing aviation ground infrastructure - mainly airports - for space activities.
- During the last 3 days what became clear to me is that there is a lot of information is being shared here that would be beneficial to the various panels of the ANC. These panels, are currently engaged in not just addressing the issues of today, but in designing solutions that will accommodate the operations of tomorrow. So I think you can see how it is important that they are as aware as possible of what the space sector is not just developing but also thinking. Now, sharing of information is a 2-way street. Just as important as it is for them to know what you know, so it is important that you are kept informed of their developments. To that end it is clear that the ANC can serve both communities as an efficient interface.
- Indeed, it is one of the main functions of the ANC as mandated in Article 57 of the Chicago Convention to advise the Council

concerning the collection and communication to the contracting States of all information which it considers necessary and useful for the advancement of air navigation. Or in plain language, the ANC listens to the communities and then provides solutions to the States and the Council.

- While we are not yet at the stage of providing solutions we are definitely in the need to listen more often and closely to the issues we heard here. To that end the ANC will be requesting a briefing on commercial space in the next months including outcomes of this symposium and the Space Learning Group. It may be needed to expand the existing Space Learning Group with more geographical representations, considering that several countries who are interested in and with more formality, transparency and visibility.
- ICAO Council considered the second ICAO/UNOOSA AeroSpace symposium last fall at its 209<sup>th</sup> session. It was anticipated that the third Symposium would set the agenda for addressing the legal issues following which the Council could consider what action ICAO needs to take in the legal field. I would ask Space Learning Group should continue to consider this matter.
- It will then be followed by a series of presentations to the all ICAO States and the community at large during the upcoming Global Air Navigation Industry Symposium - GANIS in December 11-15.
- After that the ANC will work on a set of working papers for the 13th Air Navigation Conference to be held in October 2018.
- This Conference will ask the member States of ICAO to agree on the Global Plan for Air Navigation for the next decade.
- This does not mean that we will develop specific policies on commercial space, rather that we will set a strategy for the future aviation system, - which must be able to accommodate all these operations.

- Having said that, I think we can all agree that we must keep ourselves informed of the relevant developments in the space and aviation. So I encourage all to consider attending the GANIS and I encourage all State officials here to keep themselves involved in the relevant agenda items of the Air Navigation Conference.
- It is my hope that with steps such as the ones I just outlined the ANC can serve the communities, and have the confidence of all that will enable the efficient and effective harmonization of aerospace operations for all peoples of the world.
- Please accept my sincere thank you to the moderators, speakers and organizers of this symposium.

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