

Altimetry System Error (ASE) Technical Interchange Meeting

9-11 September 2025 | Seattle, Washington

RVSM - Pushing the Limits



Executive Summary

The 2025 Altimetry System Error (ASE) Technical Interchange Meeting was a three-day event held at the Edgewater Hotel in Seattle, WA on the 9th, 10th, and 11th of September 2025. Aviation professionals came together to discuss current and emerging topics relevant to aircraft altimetry system performance and its effect on operations in RVSM airspace. The primary focus was the feasibility of extending RVSM above FL410. Other topics included height monitoring, altimetry system error trends and resolutions, RVSM approvals, avionics and certification of aircraft for RVSM operations, and meteorological data. Attendees included representatives from government and military, regional monitoring agencies, manufacturers, meteorological data providers, avionics companies, aerospace engineering firms, airlines, and air navigation service providers from around the world.

The FAA and EUROCONTROL jointly hosted the event, and began the program by providing opening remarks. The first discussion, presented by EUROCONTROL, covered RVSM in Europe, including the current HMU system and the current progress being made toward ADS-B height monitoring and the SHERLOCK system. The FAA then presented RVSM in North America. This presentation included a thorough overview of the role of regional monitoring agencies and aircraft height monitoring programs, with a focus on the two RMAs operated by the FAA. The concept of ASE and the method of its calculation were explained. ADS-B Out version II data is used in North America to calculate ASE; current experience and methods of quality control were presented, with some examples of anomalies caused by faulty meteorological data or terrain effects. Next, The Boeing Company gave a presentation on the work currently being done by Boeing to utilize ADS-B height monitoring data for indicating build stability in support of RVSM airworthiness certification, in an effort to reduce the number of newly built fuselages needing physical geometric inspections. The program was continued by AeroMech, Inc., an engineering firm holding FAA Supplemental Type Certification Organizational Designated Authorization as well as Part 21 Parts Manufacturer Approval, with a presentation comparing flight test methods, including the nose boom, wingtip boom, trailing cone, cloverleaf method, and pacer aircraft, highlighting the pros and cons of each. The FAA concluded the first day of the event with a presentation of cases of large ASE observed in the United States. The presentation included the current process in place in North America to identify cases of large ASE, the method of addressing such cases, with large ASE Reports sent through FAA Flight Standards to the relevant operators, and several examples of typical causes and resolutions.

The second day of the event was dedicated to the discussion of extending RVSM above FL410. NAV CANADA, together with UK NATS and the NAT CMA, started off the program by presenting the operational need for and benefits associated with the extension of RVSM above FL410. The talk included an overview of the current operational environment in the North Atlantic airspace, including observed usage of each flight level and currently observed aircraft types. Height monitoring in the North Atlantic was also presented, including an analysis of observed ASE performance of aircraft operating above FL410. The next presentation, by the FAA, was on the observed ASE performance above and below

FL410. This presentation included the current usage of flight levels in the United States, along with the types of aircraft observed and their current ASE performance across all flight levels. Next, AeroMech, Inc. presented certification considerations above FL410. The discussion also included pertinent RVSM regulatory requirements, altimetry system error considerations, and continued airworthiness.

Meteomatics continued the program with a presentation giving their view on what is possible, that is, the idea of RVSM above FL410 from the perspective of a provider of meteorological data. The presentation included information on Meteomatics' experience working with EUROCONTROL and the FAA. Continuing from that presentation, the FAA gave two presentations. The first covered the results of a comparison of ASE computed with two sources of meteorological data, while the second discussed the height differences between flight levels, including the distribution of geometric height differences between each 1,000 ft flight level. The second day of the event concluded with AeroMech, Inc. discussing the incorporation of computational fluid dynamics (CFD) tools for RVSM certification projects, including the experience of AeroMech working on various particular types of aircraft, and various challenges and resolutions.

The third day began with AeroMech, Inc. presenting observations from 25 years of continued airworthiness, including experience analyzing skin waviness and the use of CFD. The final presentation of the event, given by the FAA, covered improvements in monitoring in North America, including new tools enabling improved reporting of cases of large ASE, and the implementation of improved quality control procedures, in particular regarding meteorological data files. Conclusions and closing remarks were then given by EUROCONTROL and the FAA.

Participants valued the opportunity to discuss topics relevant to altimetry system performance and its effect on RVSM operations and to learn from the unique perspectives and experiences of subject matter experts. Each presentation was well received and generated detailed conversation.

Maintaining awareness and standardization of RVSM best practices is critical to continued safe operations, and the participation of such a varied group of aviation professionals is important in effecting improvements worldwide.

The FAA and EUROCONTROL thank all the attendees for making this such a successful event.