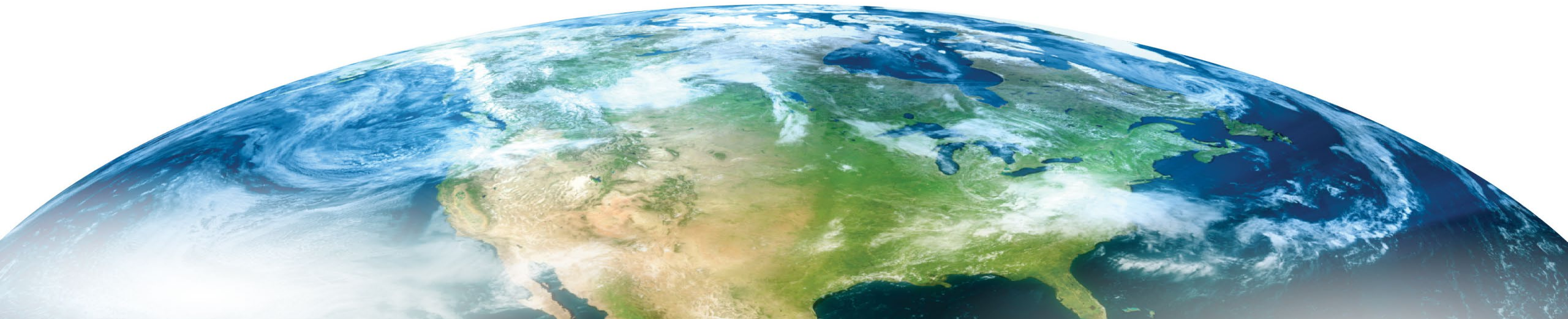# Separation Standards Analysis Program and Monitoring Agency Overview

September 2023

Separation Standards Analysis Program Overview

SEPARATION STANDARD DEVELOPMENT

- ✓ Separation and airspace concepts assessed in analytical and modeled environments to determine the safety of operations, technical and operational performance suitability, and usability.

PERFORMANCE MONITORING

- ✓ Independent ASE RVSM monitoring
- ✓ ADS-B ASE monitoring
- ✓ Post-implementation monitoring of RNP/RNAV performance-based navigation routes

SAFETY ANALYSIS

- ✓ Safety management system (SMS) oversight & reporting
- ✓ Collision risk modeling
- ✓ Conformance monitoring

RISK ASSESSMENTS

- ✓ Operational data collection and analysis
- ✓ Hazard identification
- ✓ Risk mitigation

MONITORING AGENCIES

- ✓ Operates three monitoring agencies serving the North American and Pacific Regions
- ✓ North American Approvals Registry and Monitoring Organization (NAARMO)
- ✓ Pacific Approvals Registry and Monitoring Agency (PARMO)
- ✓ Pacific Enroute Monitoring Agency (EMA)

North American Approvals Registry and Monitoring Organization (NAARMO)

During 2004, through bilateral agreements between the United States, Mexico and Canada, it was agreed that NAARMO shall support the implementation and use of RVSM in North American airspace (Canada, Mexico and the United Sates) and fulfill the role of a regional monitoring agency as specified by ICAO Doc 9574.

In general, RMA duties include:

APPROVALS REGISTRY | MONITORING | AUDITS | TREND ANALYSIS | ASSESS SAFETY

Maintain an approvals registry

Perform altimetry system error monitoring

Confirm aircraft RVSM approval status

Collect and assess operational errors

Perform collision risk calculations

NAARMO

NAARMO has the largest number of RVSM capable aircraft to manage and monitor

Pacific Approvals Registry and Monitoring Organization (PARMO)

In late 1997 during the first meeting of the Pacific RVSM Task Force, States providing air navigation services in the international airspace over the Pacific agreed to pursue implementation of the RVSM.

Subsequently, the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG), approved APARMO as the RMA.

The original entity was renamed the Pacific Approvals Registry and Monitoring Organization (PARMO).
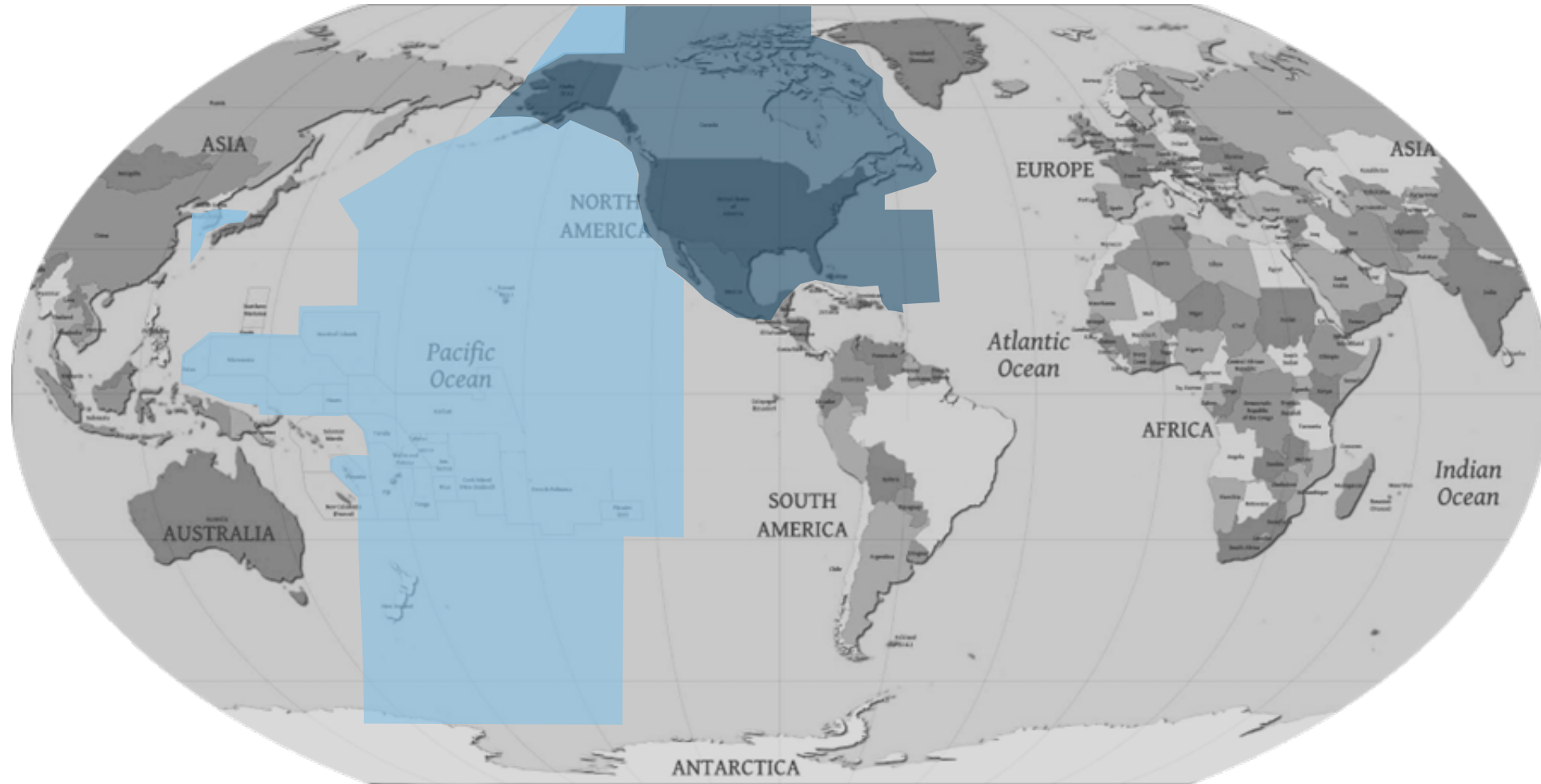
At the Second Meeting of the Task Force, participating States agreed to establish the Asia/Pacific Approvals Registry and Monitoring Organization (APARMO) to perform the duties and responsibilities of an RMA.

As RVSM implementation progressed throughout the Asia/Pacific Region, the APARMO's duties and responsibilities were divided among regional monitoring agencies provided by several States.

PARMO States

- ✓ Cook Islands
- ✓ Fiji
- ✓ Kiribati
- ✓ Marshall Islands
- ✓ Micronesia (Federated States of)
- ✓ New Zealand
- ✓ Palau
- ✓ Republic of Korea
- ✓ Samoa
- ✓ Tonga
- ✓ United States and Tahiti Airspace

NAARMO/PARMO Combined Area of Responsibility

PARMO   NAARMO

Alternate Slides

Separation Standards Analysis Program

The program examines separation and airspace concepts in analytical and modeled environments to determine the safety of operations, technical and operational performance suitability, and usability.

1

Provide the RVSM Regional Monitoring Agency (RMA) services for North America and the Pacific

- Conduct airspace safety analyses
- Maintain the U.S. RVSM approvals registry
- Provide other RMA-required documentation that enable continued RVSM capability for US operators

2

Monitor aircraft in Reduced Vertical Separation Minimum (RVSM) airspace in North America

- Calculate Altimetry System Error (ASE) and reports non-compliant aircraft for resolution

3

Perform the horizontal risk analysis for US-delegated oceanic airspace

- In the Asia Pacific region, the monitoring functions are delegated to Enroute Monitoring Agencies (EMAs)
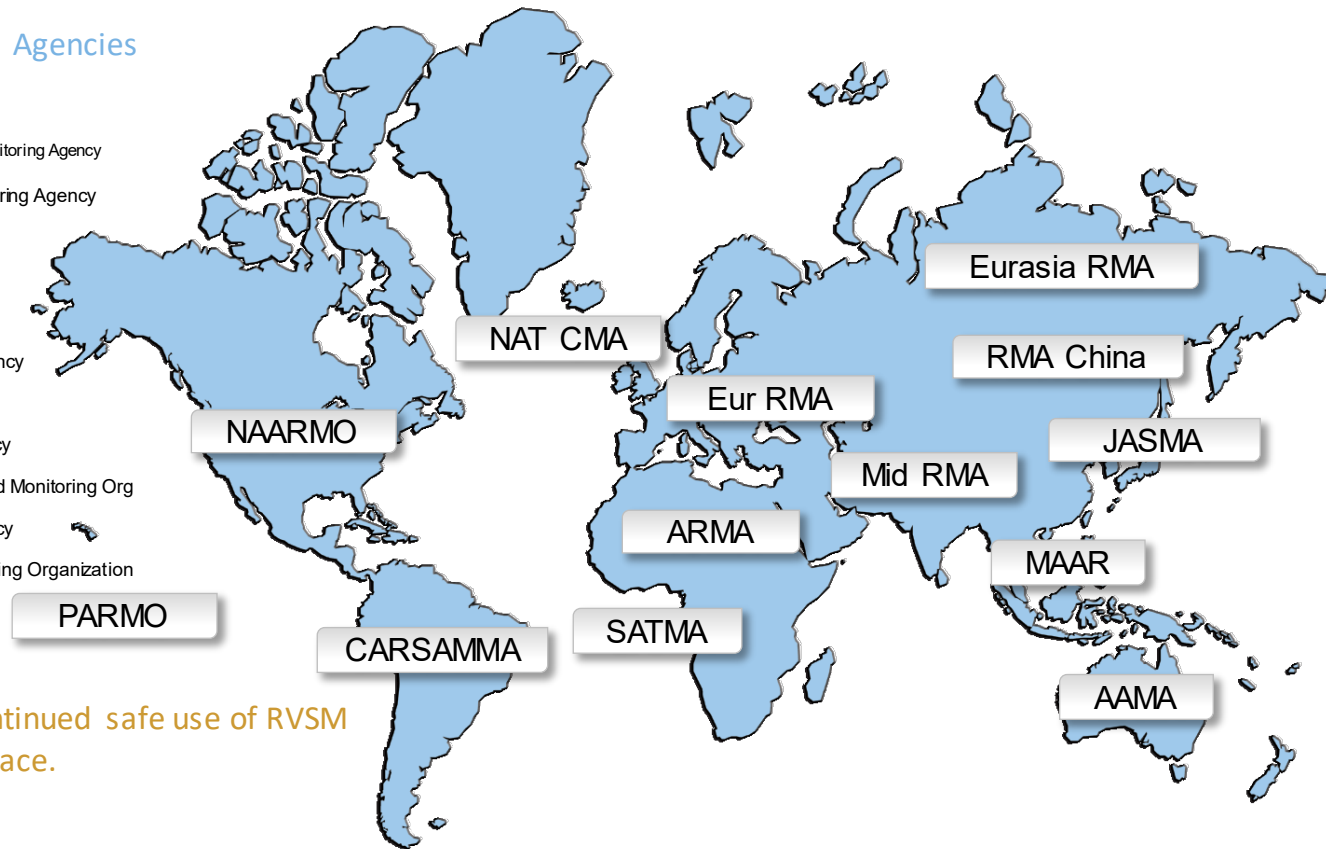
Regional Monitoring Agencies

In all regions where RVSM has been implemented, regional monitoring agencies (RMAs) have been established by the appropriate planning and implementation regional groups (PIRGs) to satisfy the goals of the RVSM monitoring program.

ICAO-Endorsed Regional Monitoring Agencies

AAMA	Australian Airspace Monitoring Agency
ARMA	African and Indian Ocean (AFI) Regional Monitoring Agency
CARSAMMA	Caribbean and South American Monitoring Agency
China RMA	China Regional Monitoring Agency
EurAsia RMA	Regional Monitoring Agency Eurasia
Eur RMA	European Regional Monitoring Agency
JASMA	Japan Airspace Safety Monitoring Agency
MAAR	Monitoring Agency for Asia Region
Mid RMA	Middle East Regional Monitoring Agency
NAARMO	North American Approvals Registry and Monitoring Org
NAT CMA	North Atlantic Central Monitoring Agency
PARMO	Pacific Approvals Registry and Monitoring Organization
SATMA	South Atlantic Monitoring Agency

An RMA supports the continued safe use of RVSM within a designated airspace.