Commission for Aeronautical Meteorology

Global Survey 2016-2017

May 2017

WEATHER CLIMATE WATER
TEMPS CLIMAT EAU

WMO OMM

World Meteorological Organization
Organisation météorologique mondiale

Roles and Responsibilities of WMO and ICAO in aviation MET

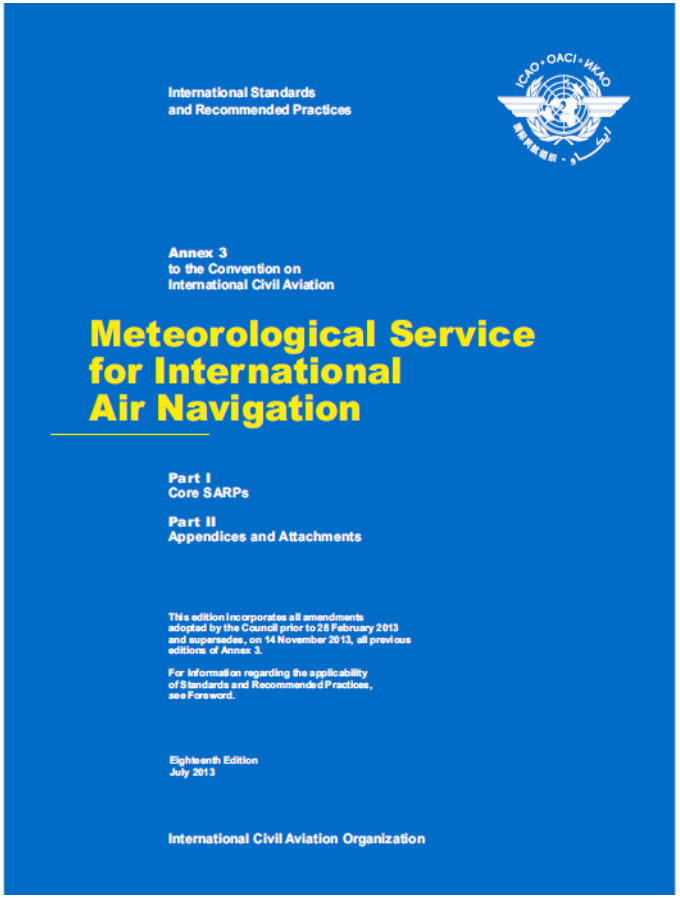
WMO OMM

- One of the purposes of the WMO is **"…to further the application of meteorology to aviation…"** (WMO Convention, article 2)

- WMO together with the International Civil Aviation Organization (ICAO) establish the regulatory framework for meteorological (MET) service for international air navigation **(ICAO Annex 3, WMO Technical Regulations, Volume II)**

- The purpose of the MET service to aviation is: **"to contribute to safety, efficiency and regularity" of the air transport**


Technical Regulations
Basic Documents No. 2
Volume II – Meteorological Service for International Air Navigation
2013 edition
World Meteorological Organization
Weather · Climate · Water
WMO-No. 49


International Standards and Recommended Practices
Annex 3 to the Convention on International Civil Aviation
Meteorological Service for International Air Navigation
Part I Core SARPs
Part II Appendices and Attachments
This edition incorporates all amendments adopted by the Council prior to 28 February 2013 and supersedes, on 14 November 2013, all previous editions of Annex 3.
For information regarding the applicability of Standards and Recommended Practices, see Foreword.
Eighteenth Edition July 2013
International Civil Aviation Organization

WMO OMM

Roles and Responsibilities of WMO and ICAO

	ICAO	WMO
Type of organization	UN Technical Agency	UN Technical Agency
Primary responsibility	**Establishing user requirements for meteorological services**	**Developing meteorological techniques, methods and practices**
Collaboration with	Aviation stakeholders; aviation industry; Organizations like IATA, IFALPA, CANSO, etc	MET stakeholders; research community
Membership	Contracting States	Members
National counterparts	CAA, DGCA	NMHS, D/NMHS and PR with WMO
Other responsibilities	Training – aviation related	Qualification and training – basic and specialized MET
Work structure	ANC / MET Panel / Working Groups	CAeM / Expert Teams
Executive bodies	ICAO Council, Assembly	WMO Executive Council, Congress
Main documents	ICAO Annex 3, Guidance material on aviation specific matters	WMO Tech Regulations, Vol. II, Guidance material on meteorological aspects

WMO and ICAO aviation MET bodies

ICAO

- MET Panel established by the ANC
- Working Groups
- Regional Groups

WMO

- Commission for Aeronautical Meteorology (CAeM)
- Expert Teams
- Regional groups

CAeM Global Survey

Objective

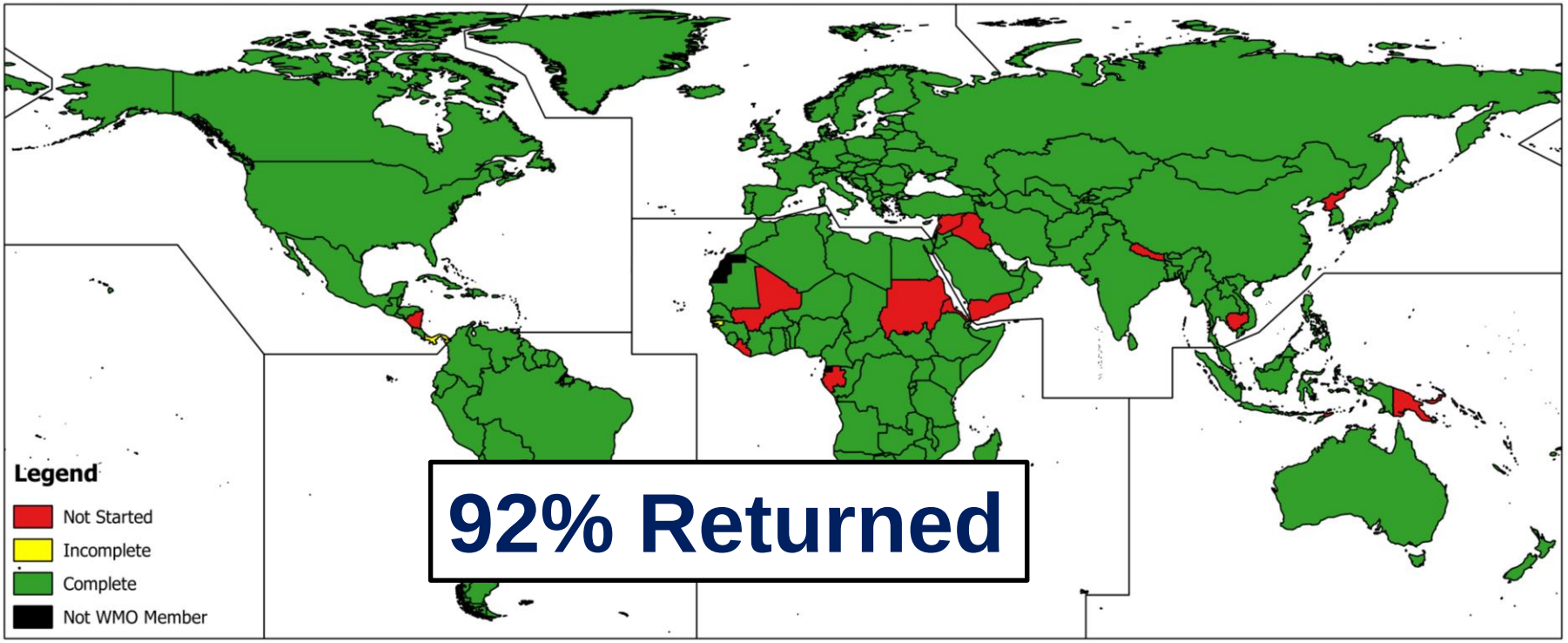
- To provide a consolidated view on the existing institutional arrangements for the provision of MET services to international air navigation
- To monitor compliance with WMO priority areas w.r.t. aviation MET (QMS, competency, etc.)
- Particular focus on the ICAO functions of MWO, AMO and AMS – to identify regional and national variations
- To identify main challenges

CAeM Global Survey

Structure of survey - sections:

- National legislation, regulation and institutional arrangements;
- Organizational aspects of MET services;
- Compliance monitoring with focus on QMS, competency and qualification;
- Cost recovery;
- Technical capabilities; and
- Identification of challenges.

WMO CAeM Global Survey 2017



NOTE:
All content included on this map is for informative purposes only.
For detail, please read WMO Disclaimer at public.wmo.int/en/disclaimer.

2500 0 2500 5000 7500 10000 km

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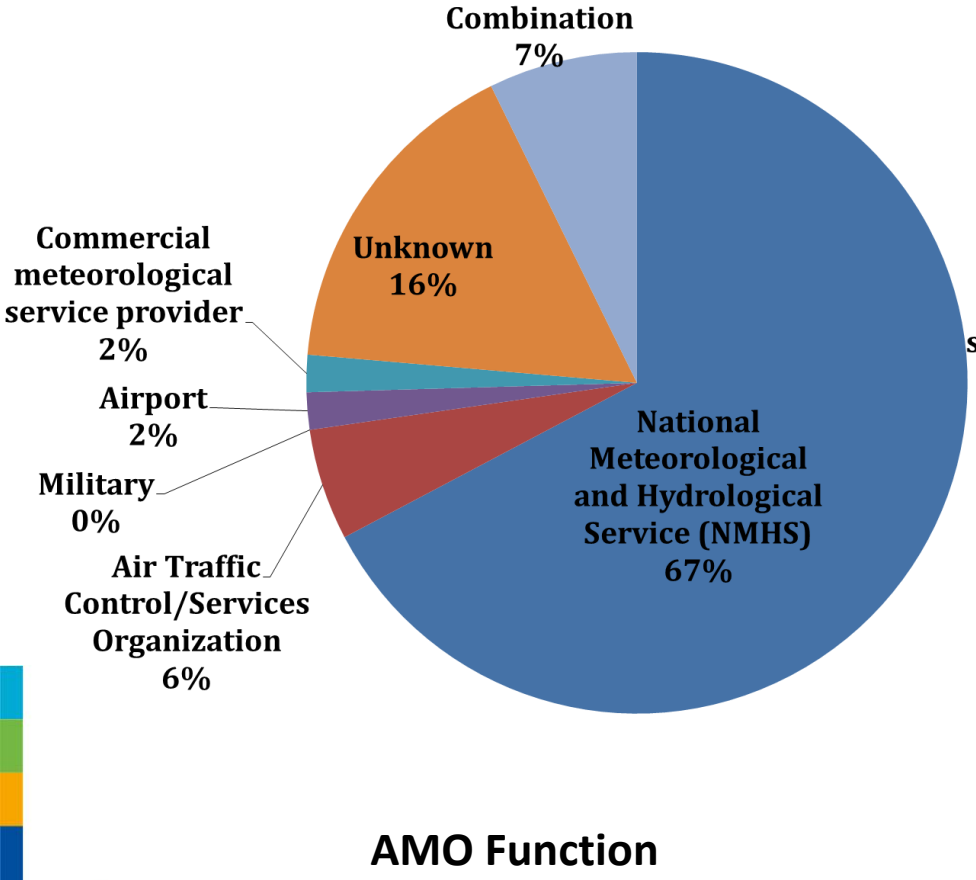
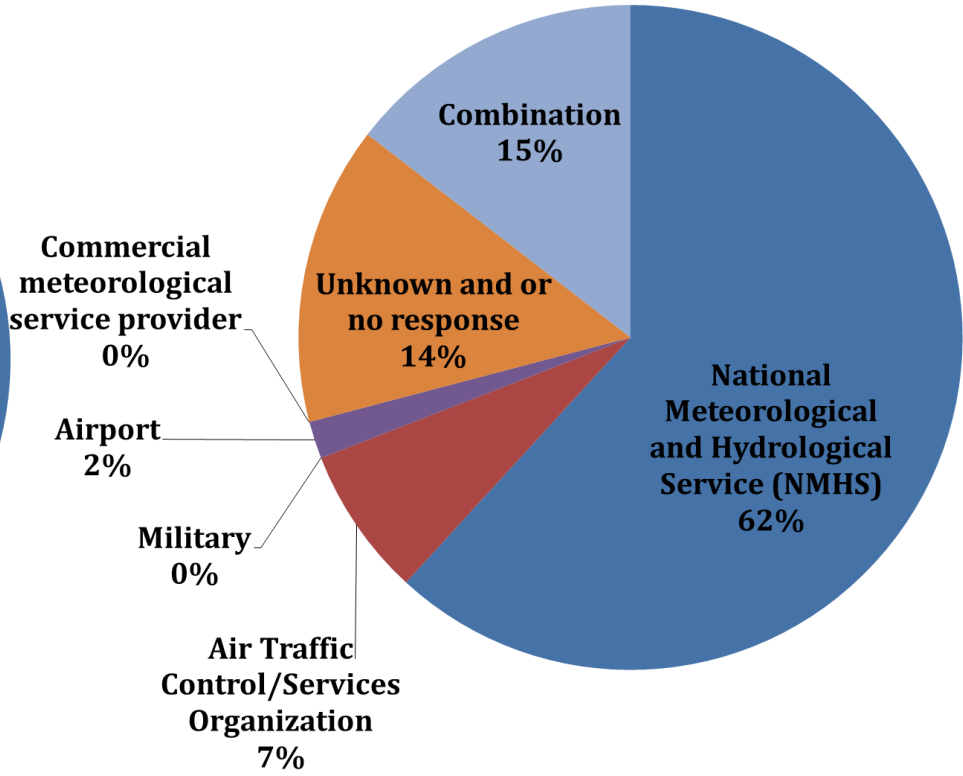
Institutional Arrangements

- For **AMO** (~650) and especially **AMS** (~1250(int)/2500(dom)) functions in circa 50% the AMSP is the NMHS.



AMO Function



AMS Function

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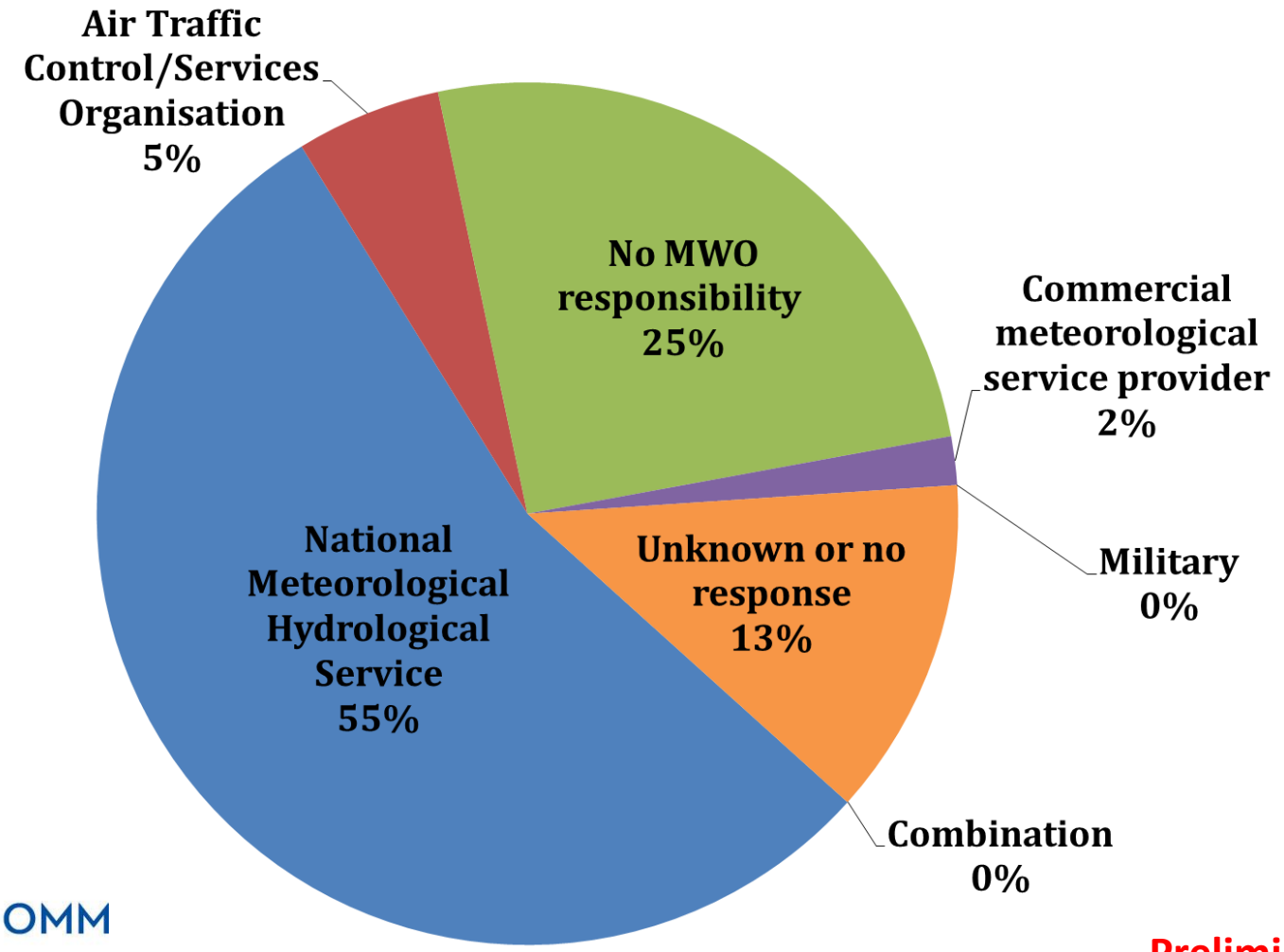
Preliminary figures

Institutional Arrangements

- In 55%, the NMHS is the responsible AMSP for the **MWO function** (~250).



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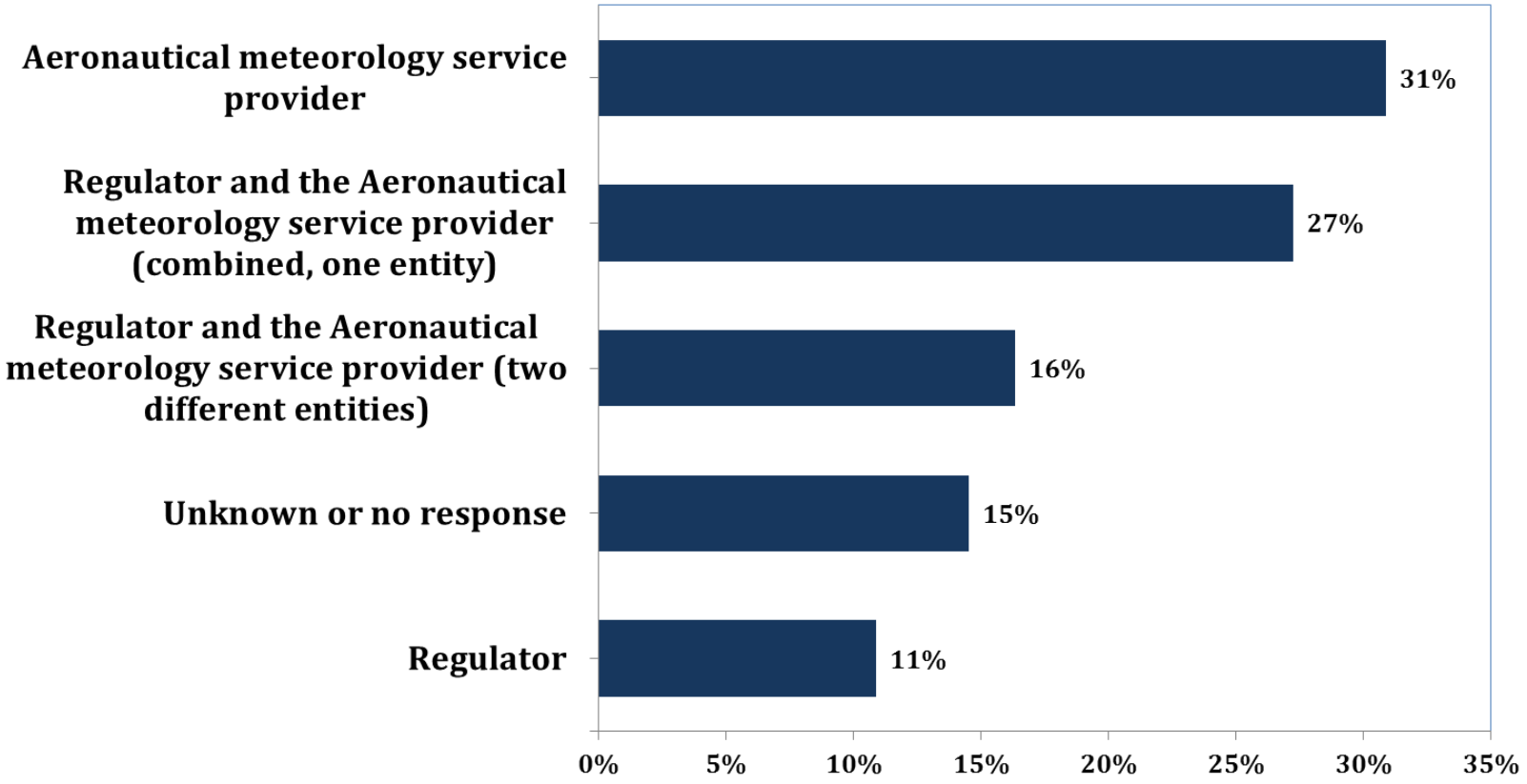
Preliminary figures

Institutional Arrangements

How is the notion of Meteorological Authority applied in your State/Territory?



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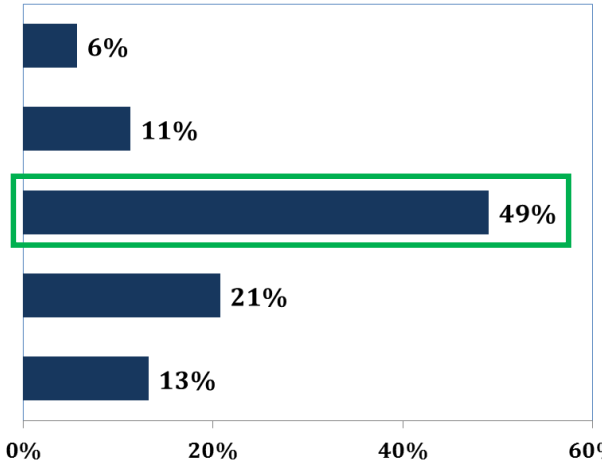
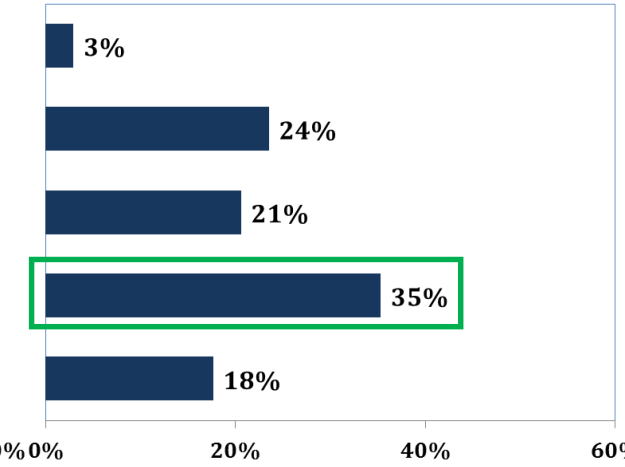
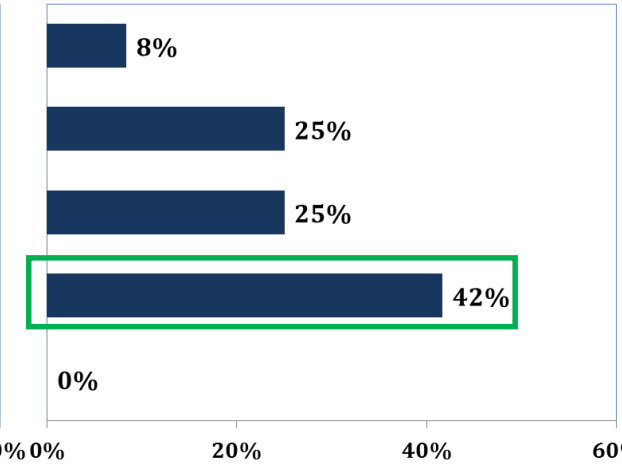


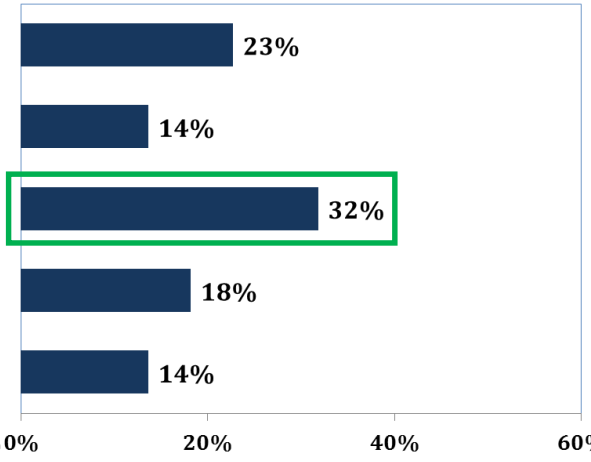
RA I



RA II



RA III



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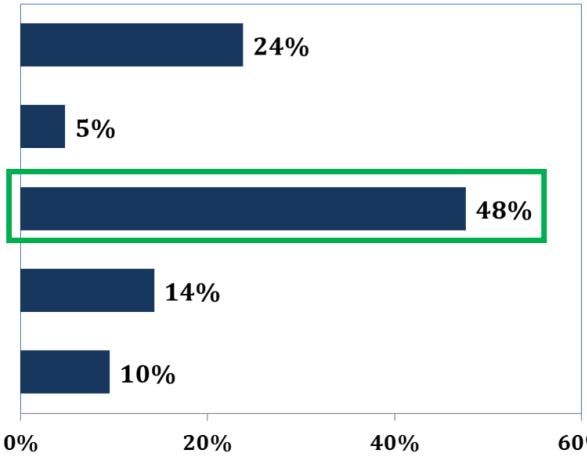
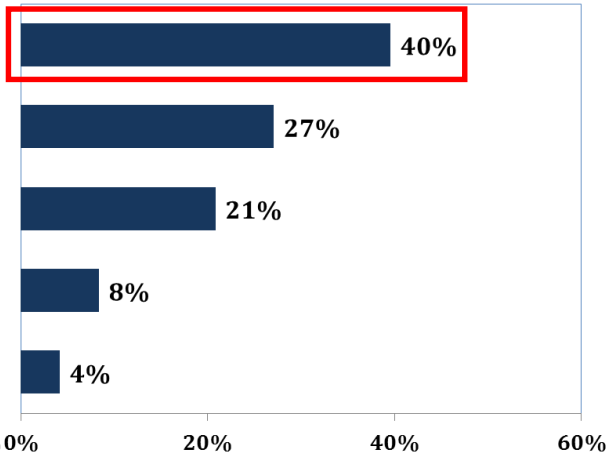


RA V



RA VI

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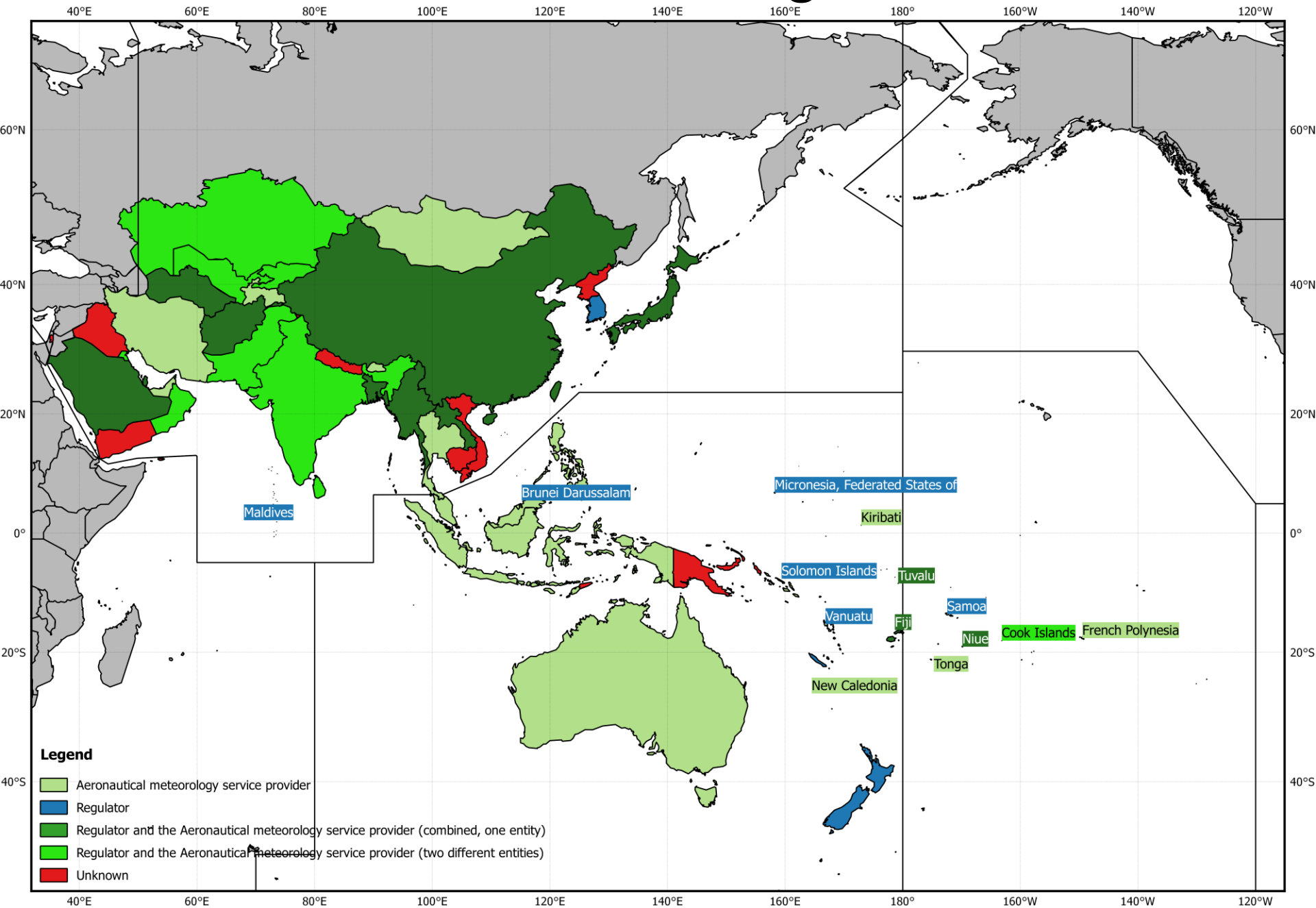
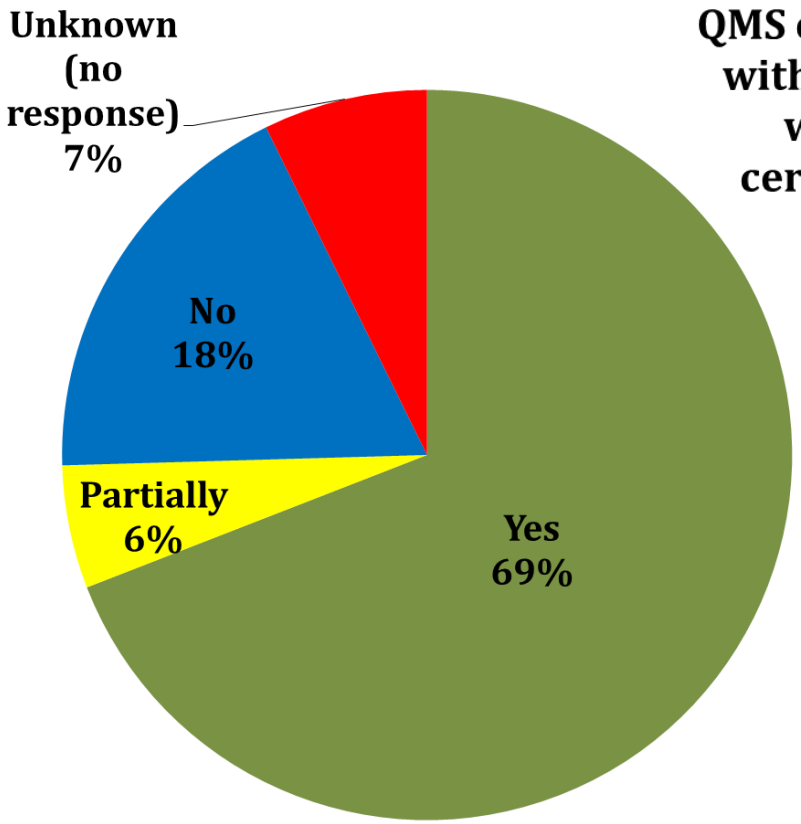
Changing role of NMHS: from being both provider and regulator towards AMSP only.

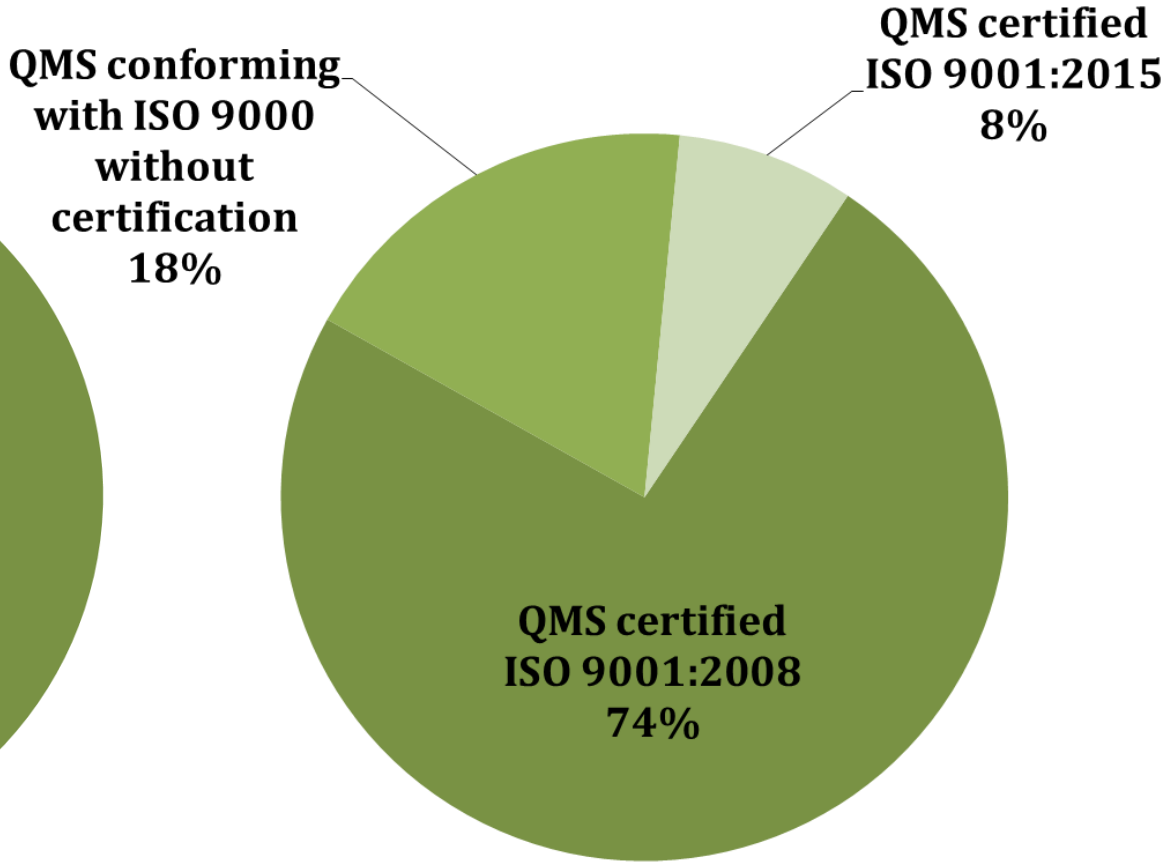
Institutional Arrangements



QMS Implementation



Status of QMS implementation of AMSPs per State/Territory



Type of QMS certification for Compliant States/Territories

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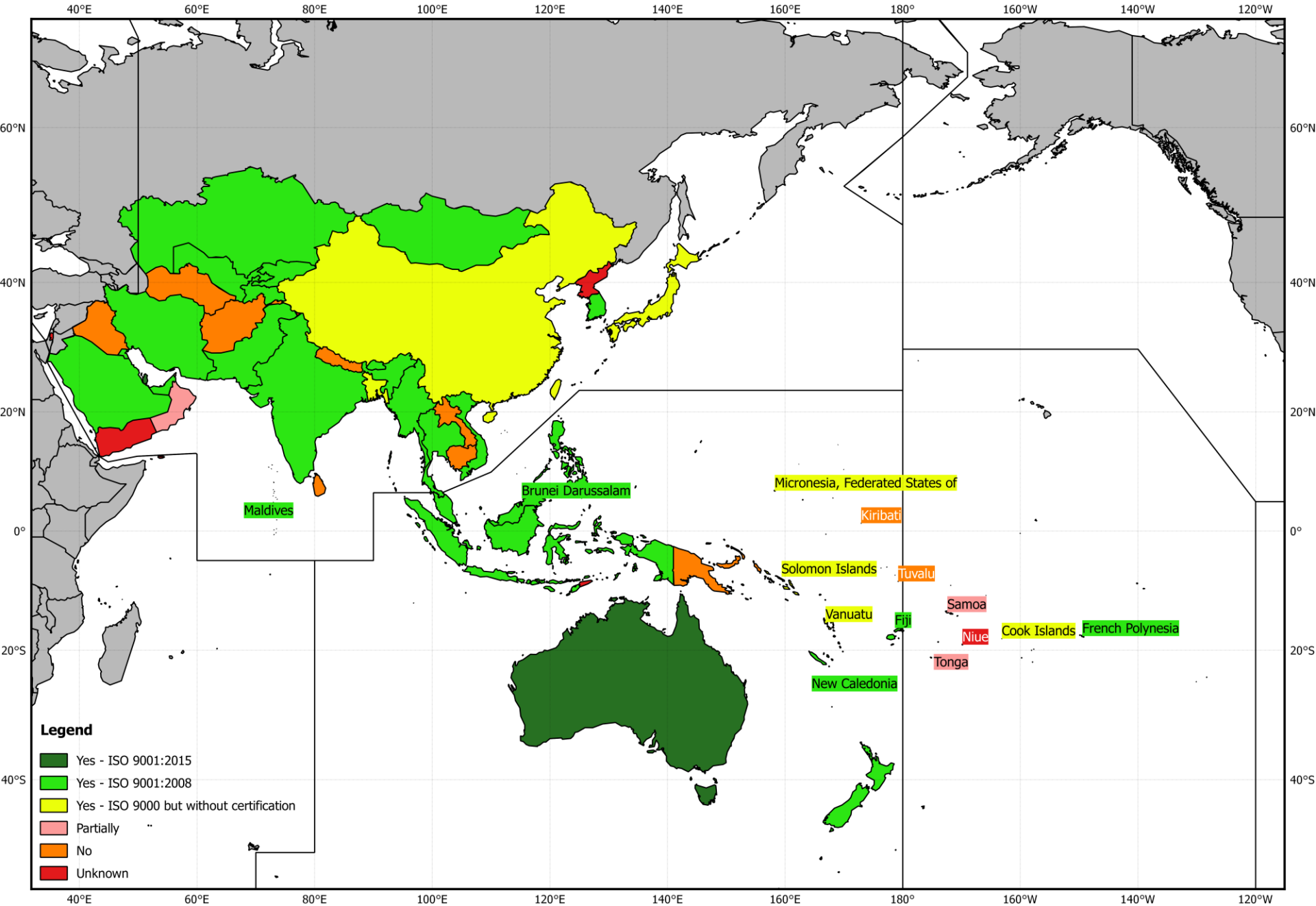
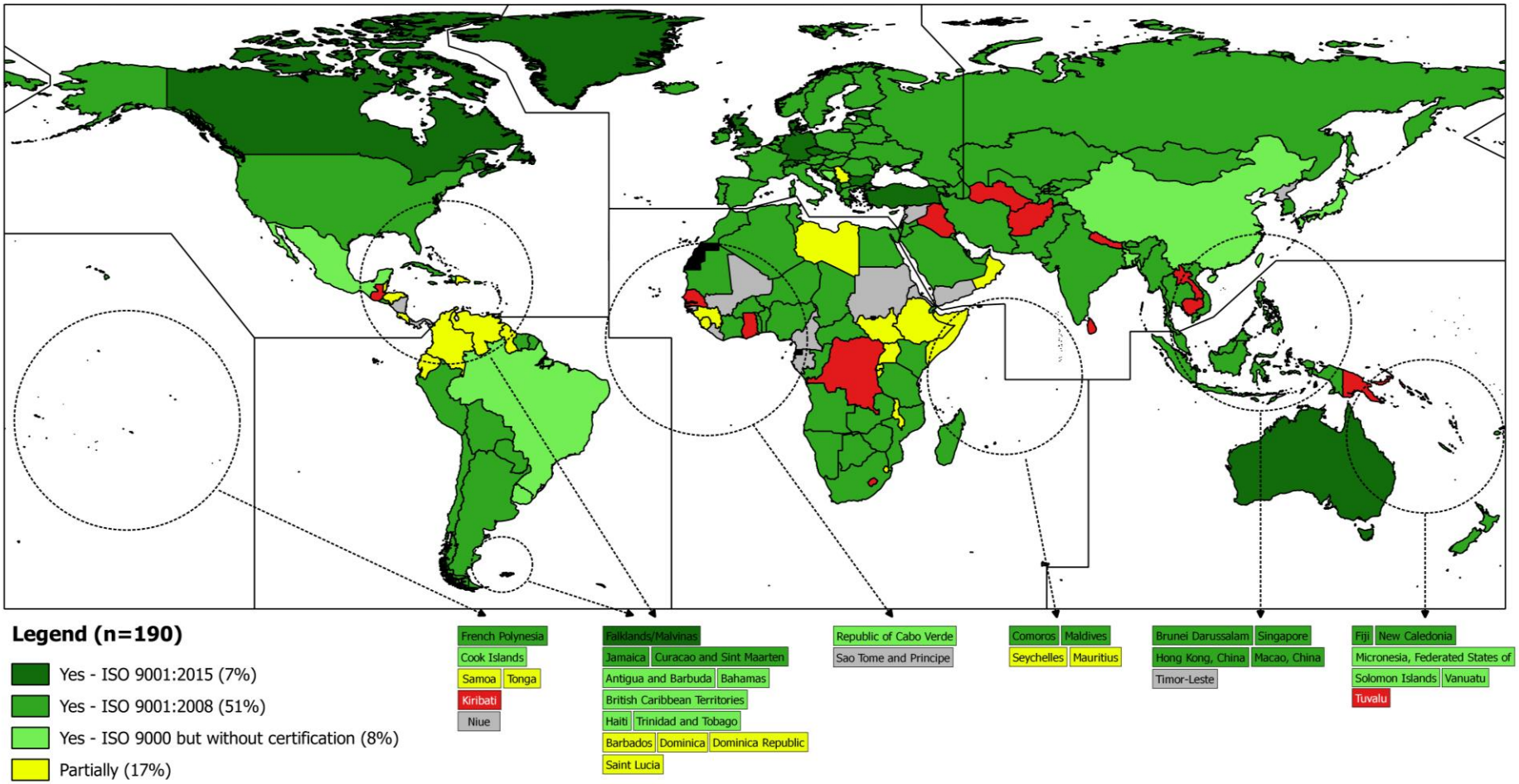
QMS Implementation (2017)



QMS Implementation (2017)



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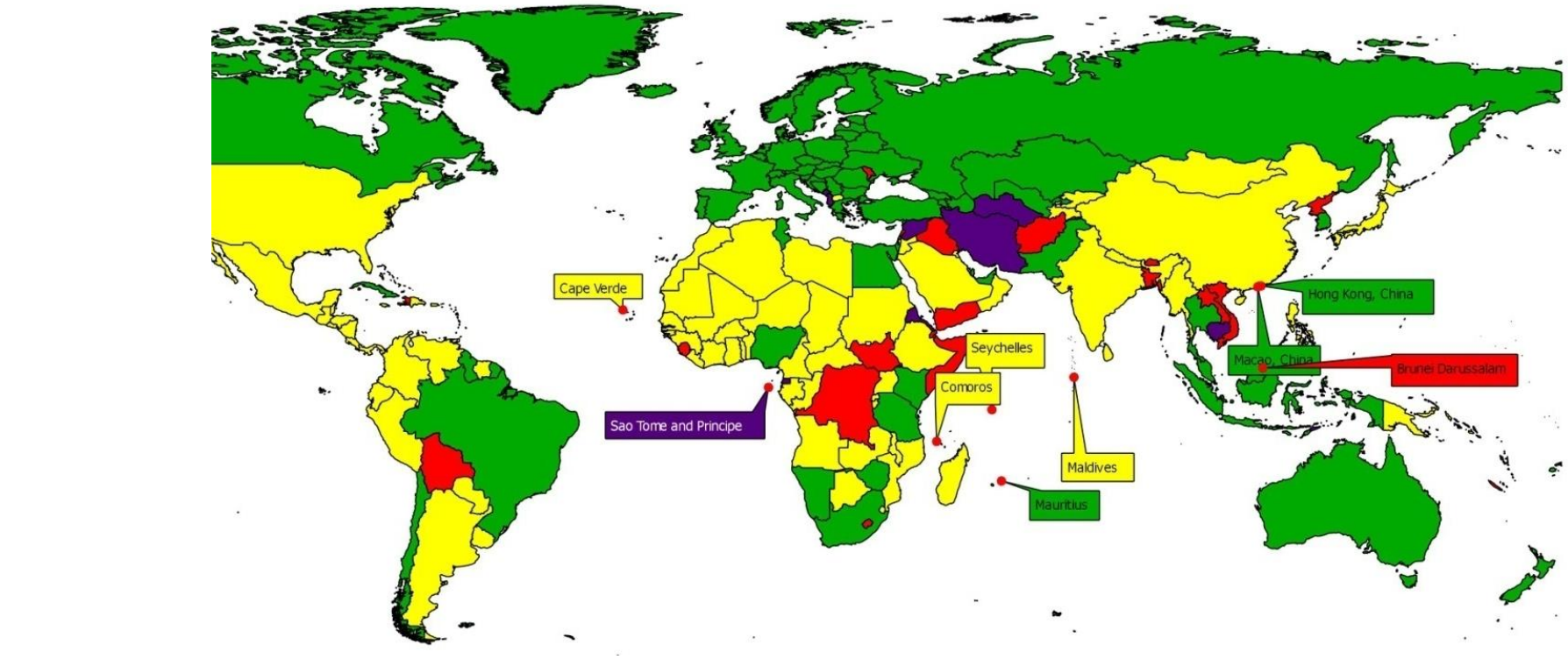
QMS Implementation (2013)



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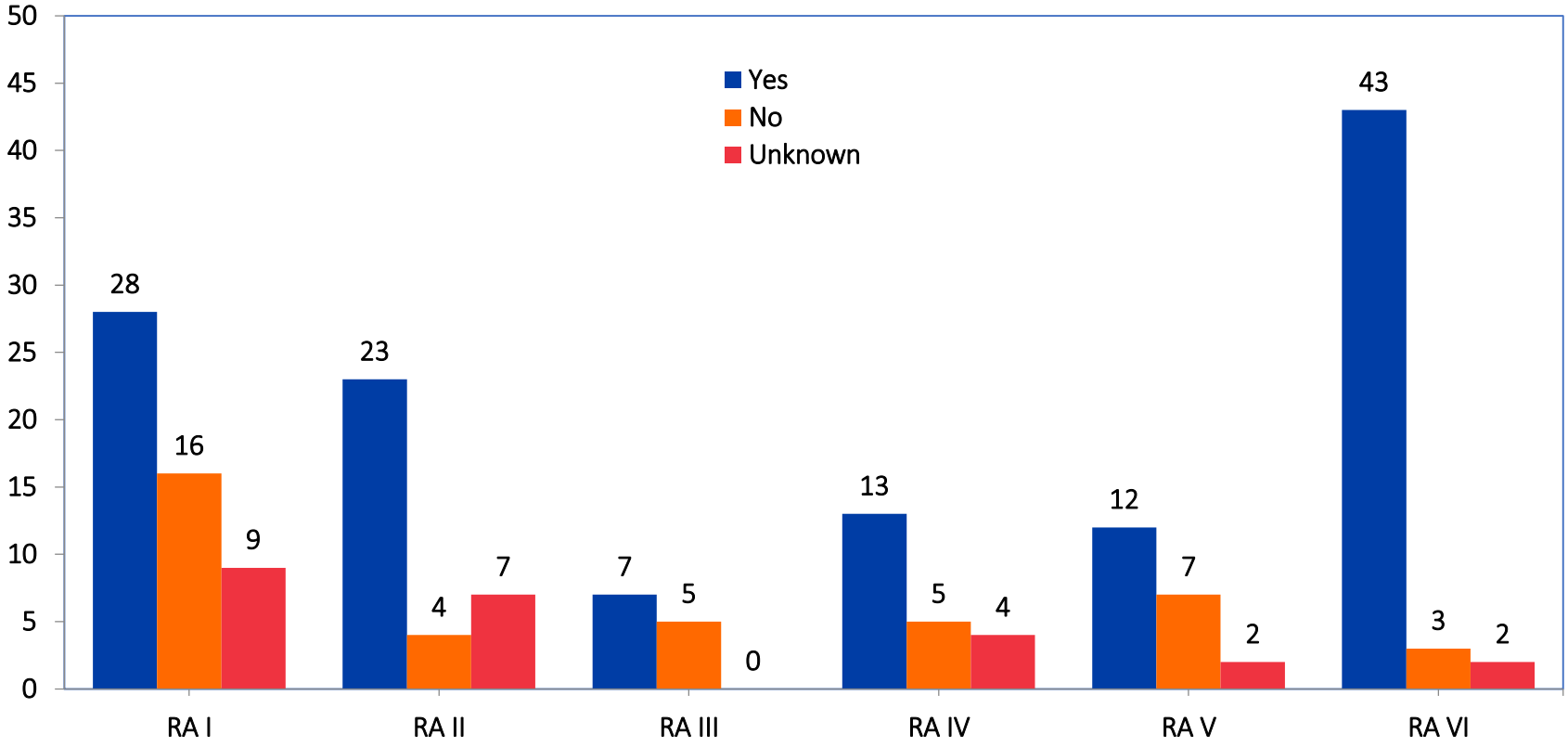
TAF Verification



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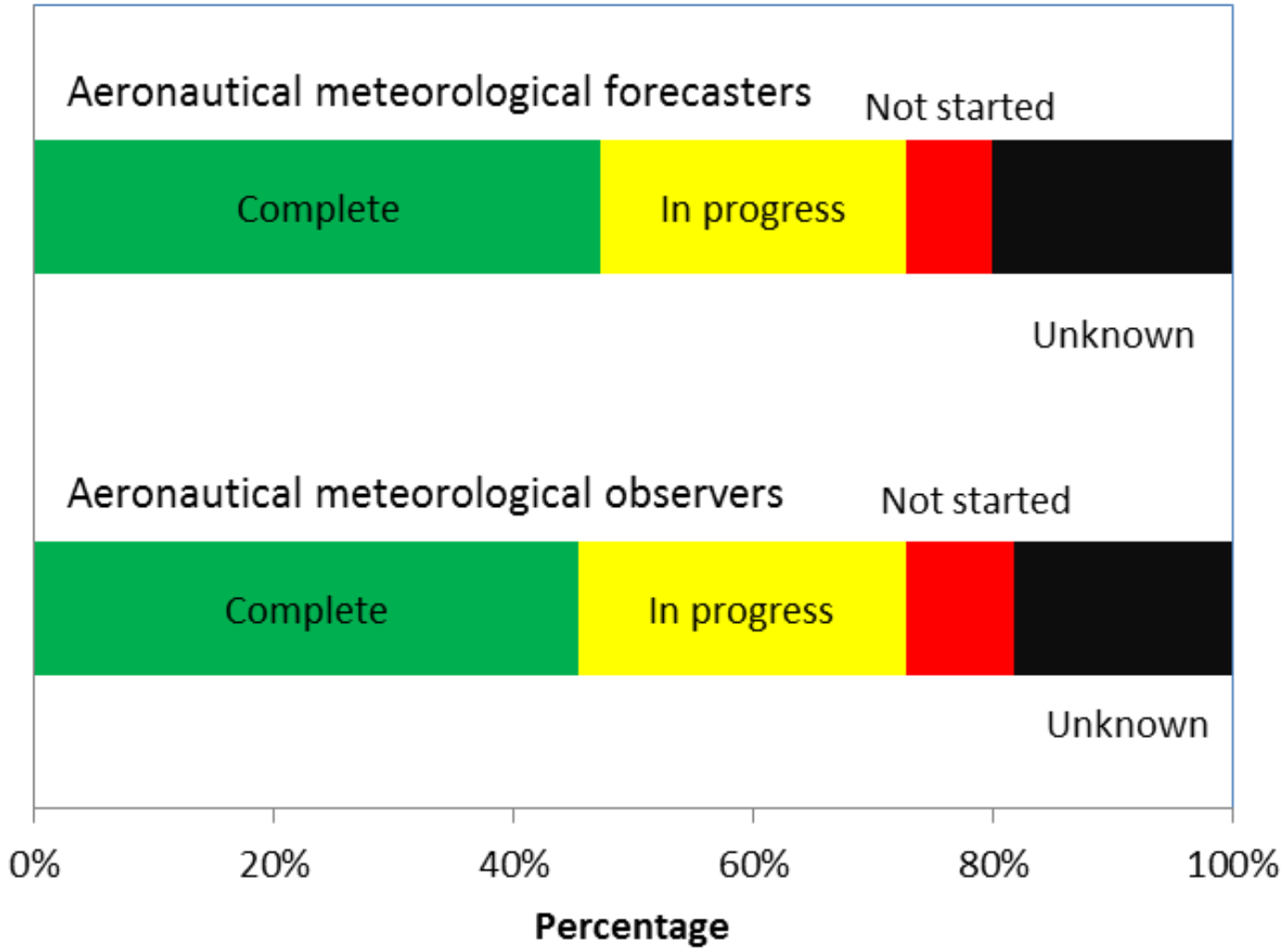
AMP Competency Assessment



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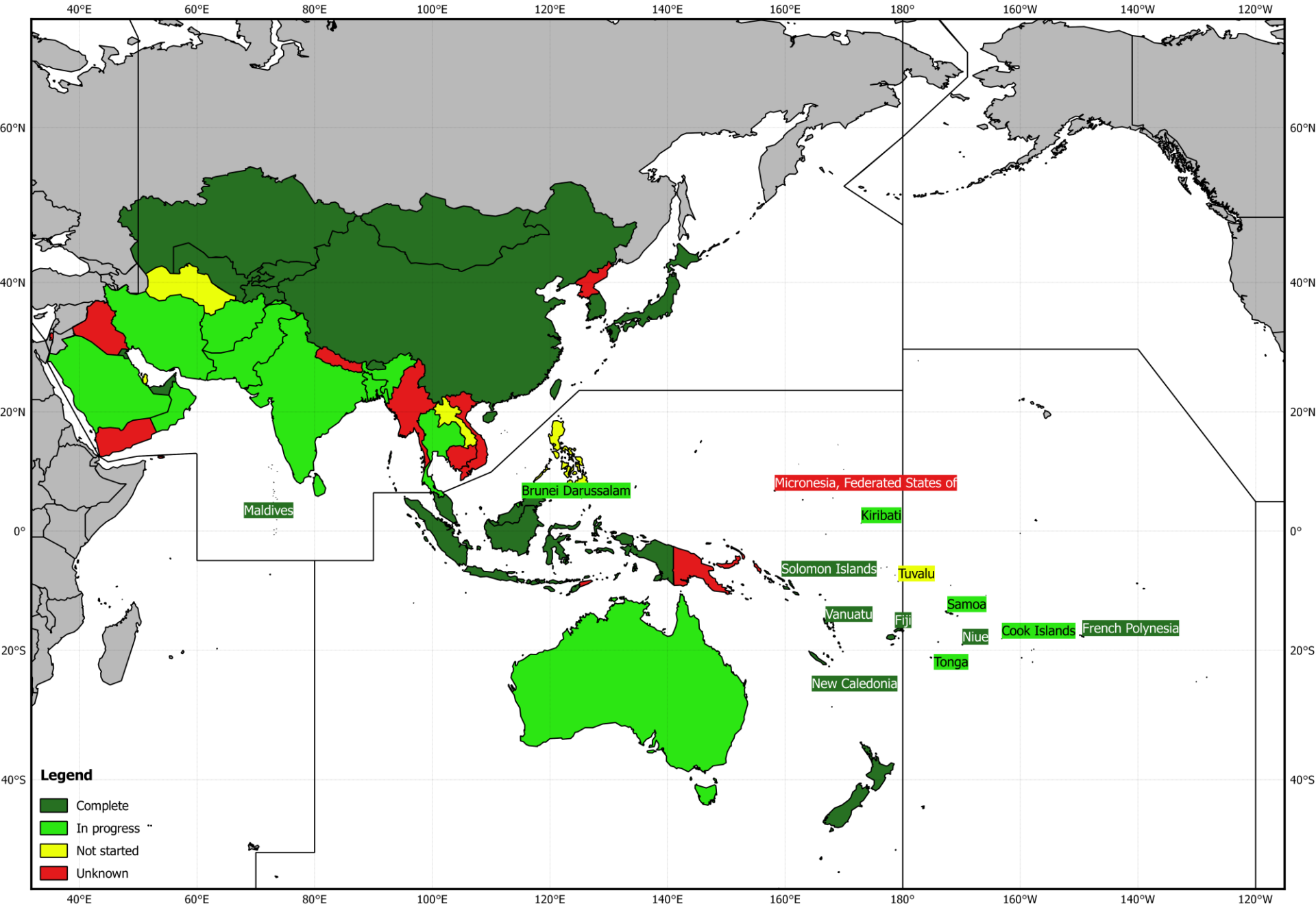
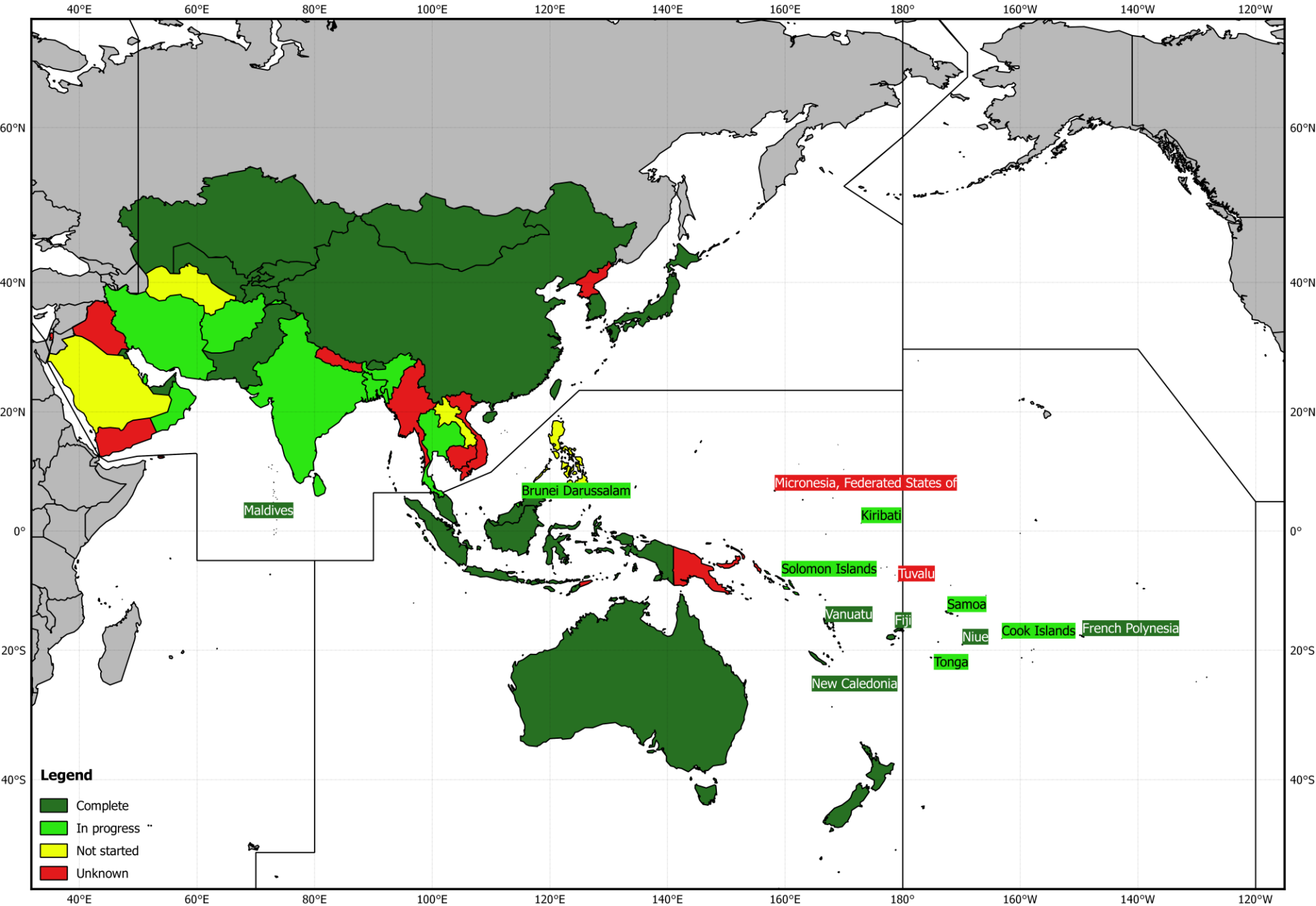
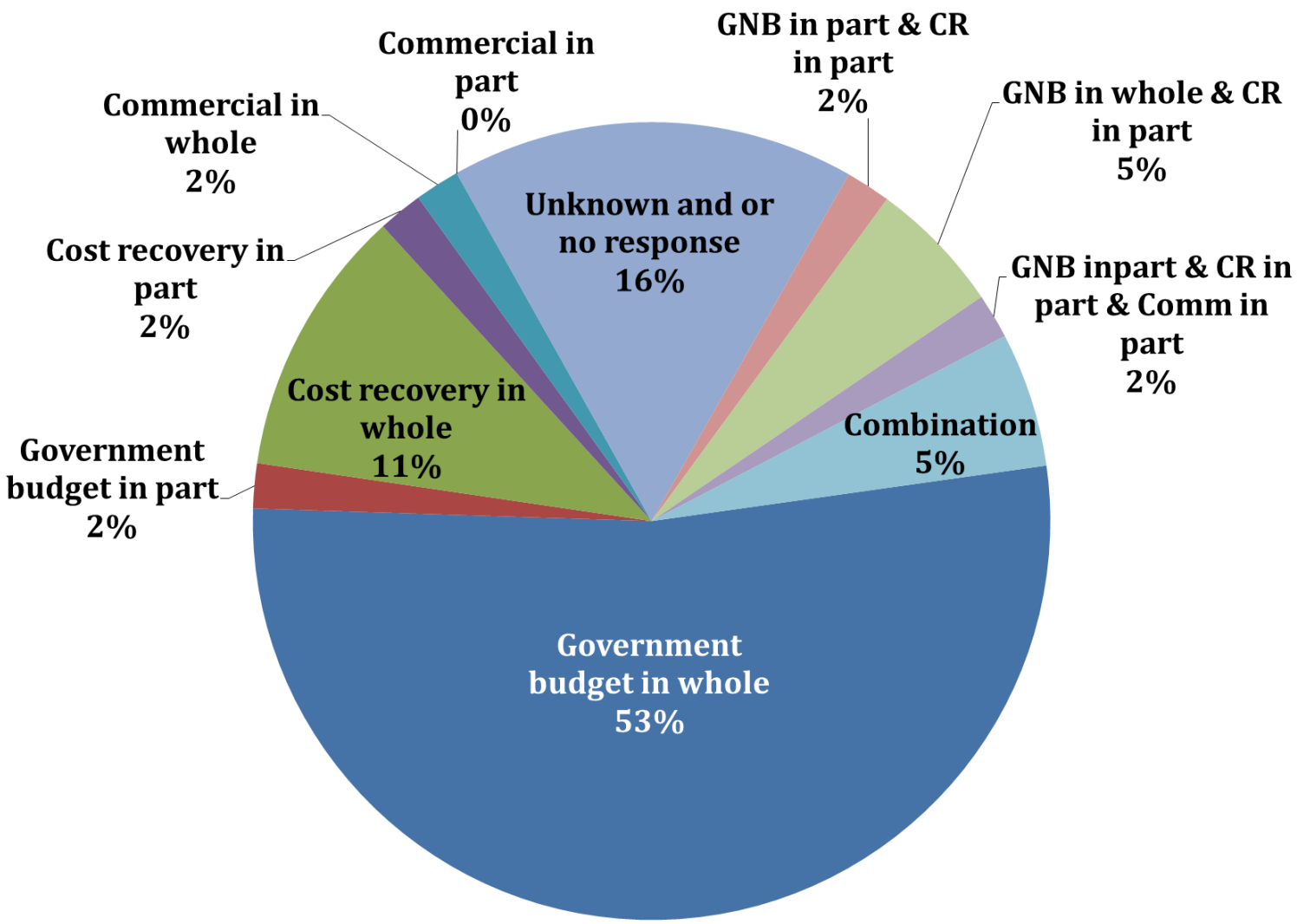
AMP Competency Assessment - Observers



AMP Competency Assessment - Forecasters



Cost Recovery



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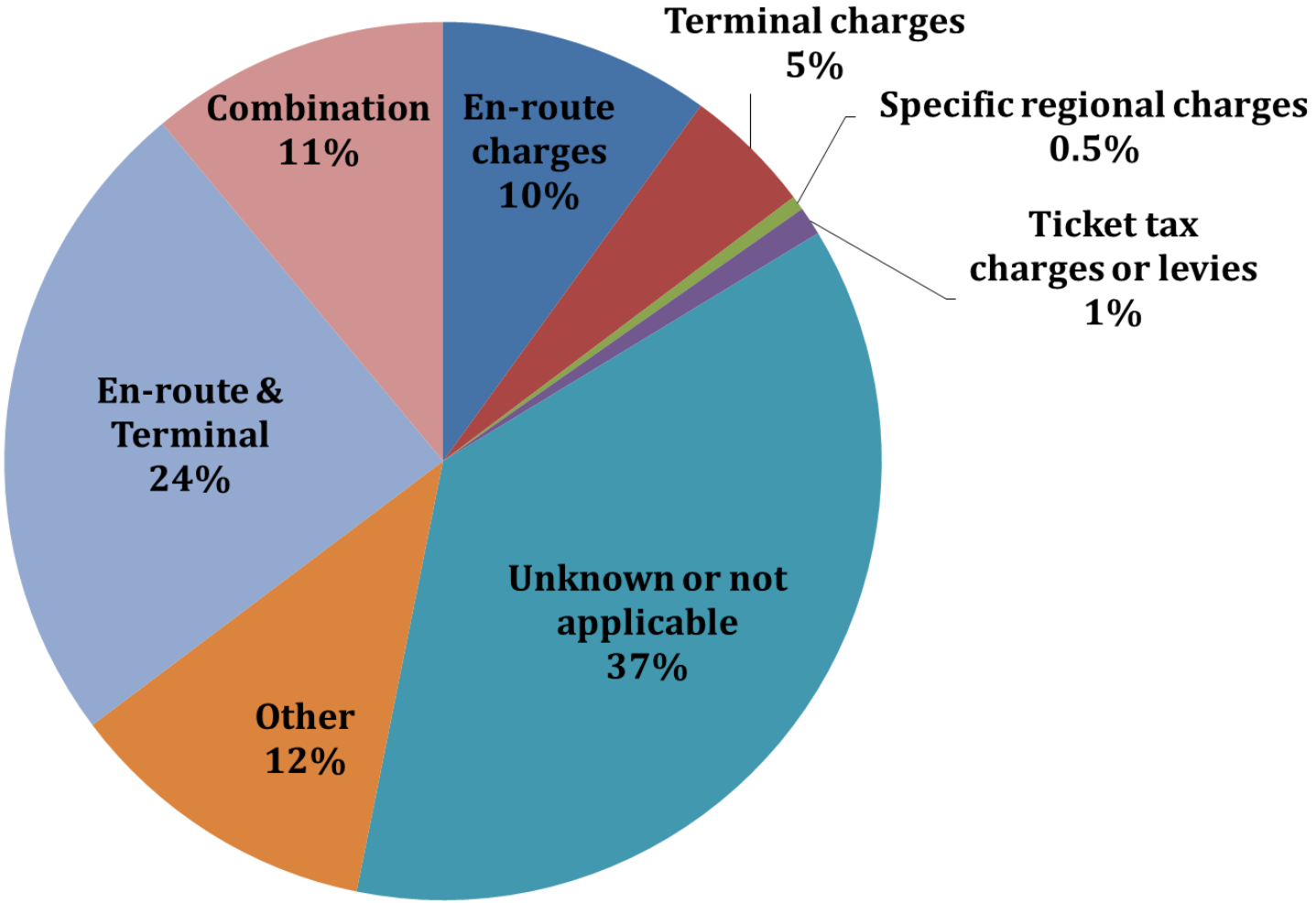
Funding Mechanism

Cost Recovery



Type of Cost Recovery

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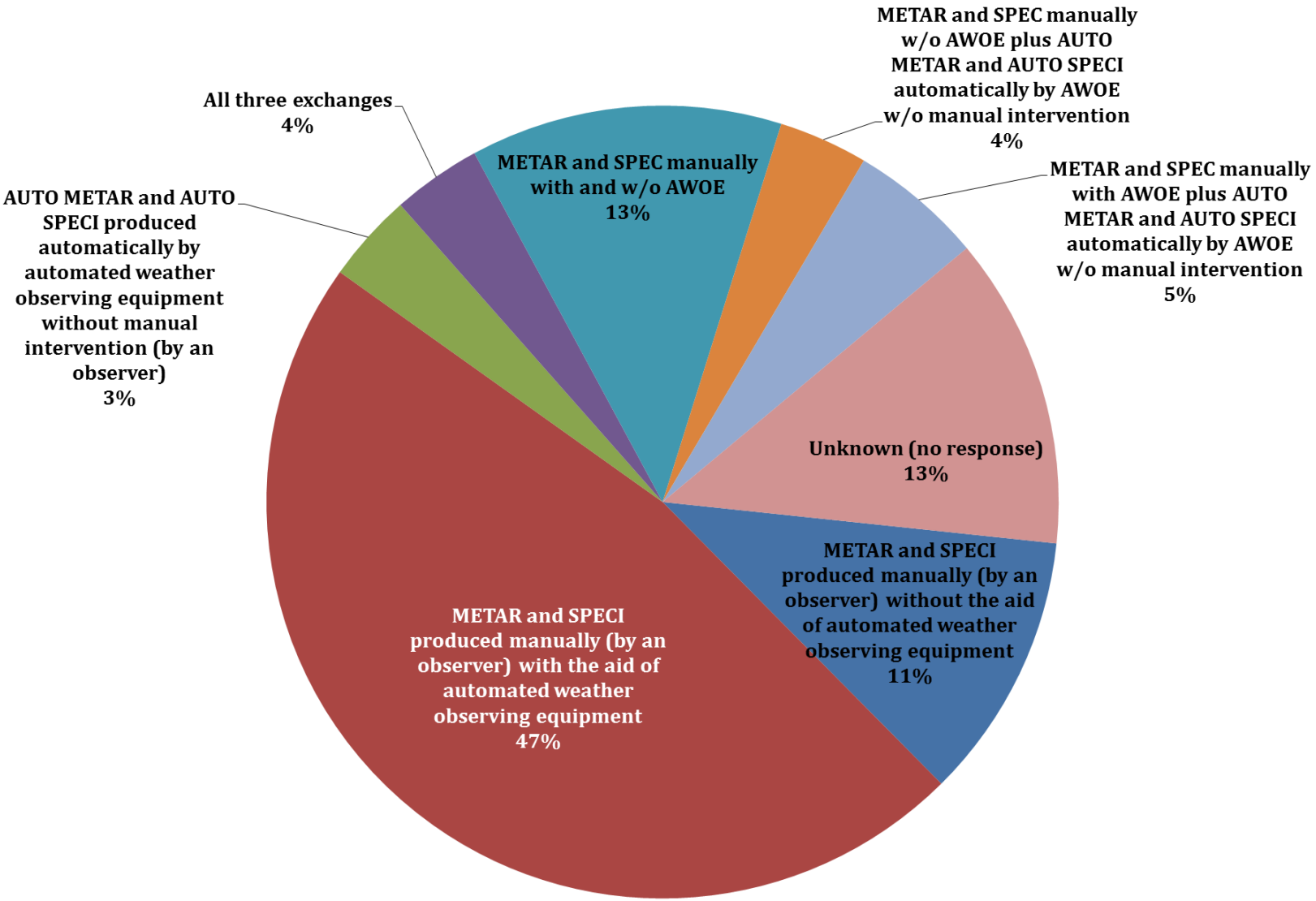
Automation of Observation



Current Status

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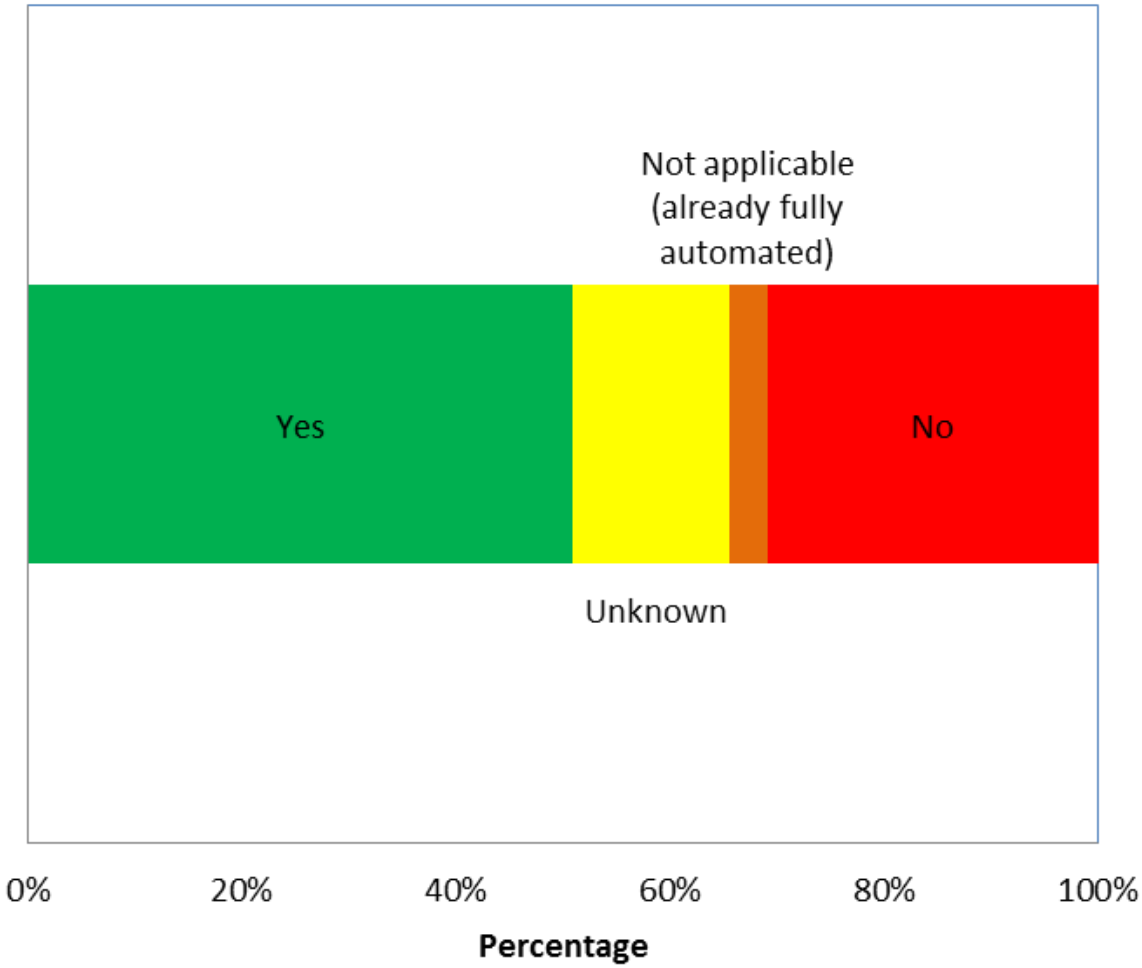
Automation of Observation



Plans for migrating to full automation

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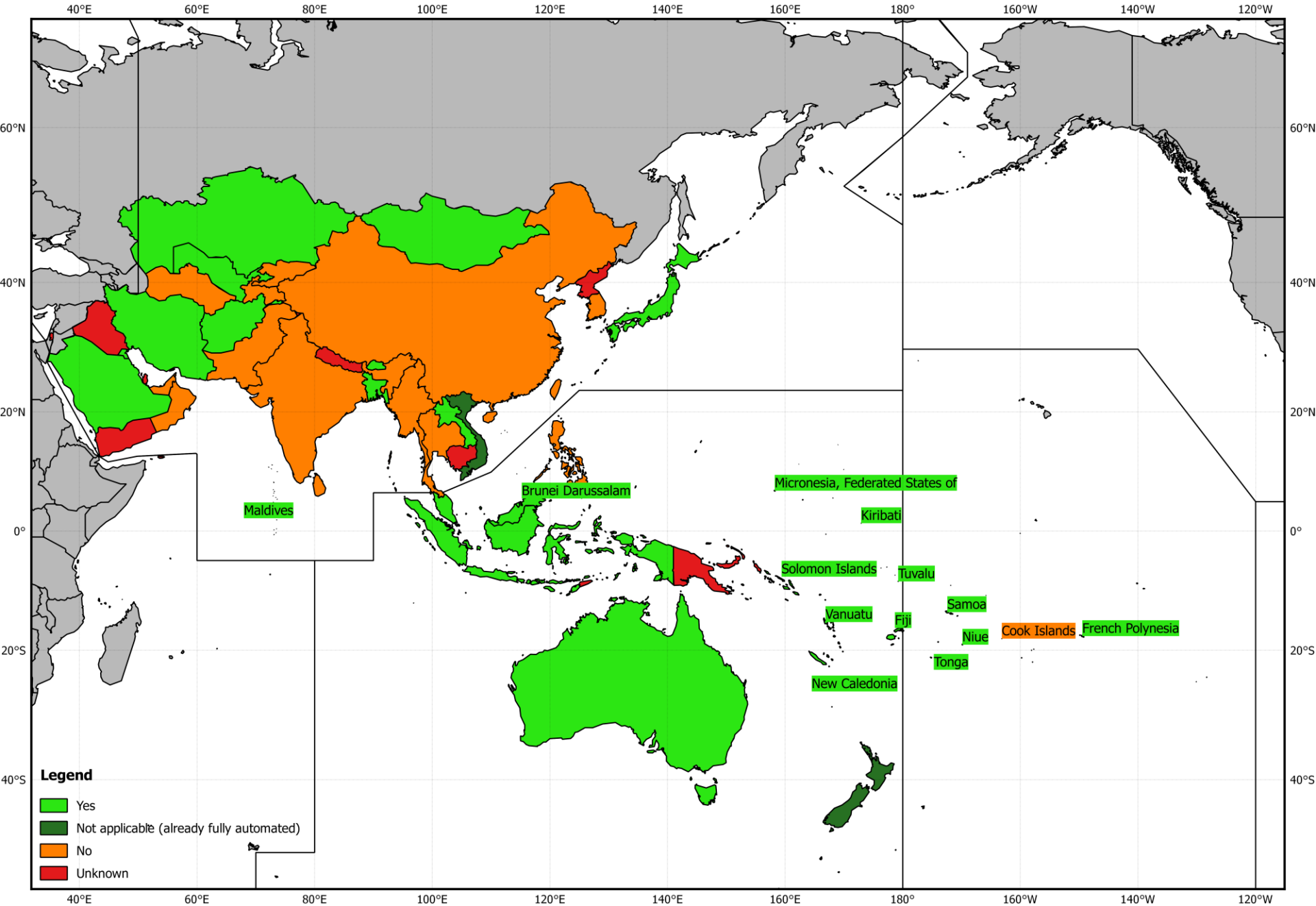
Automation of Observation



Challenges Perceived by Members

No.	Challenge	
No.1	**Migration to XML**	
No.2	**Qualification of AMF (including lack of qualified personnel)**	
No.3	**QMS implementation/maintenance**	**Primary Grouping**
No.4	**Maintenance and calibration of observing equipment**	
No.5	**Automation of aerodrome observation**	
No.6	**Meeting demands for advanced products and services**	
No.7	**Cost-recovery implementation**	
No.8	**Competency assessment**	**Secondary Grouping**
No.9	**SIGMET quality**	
No.10	**Advanced MET information and services for TA**	
No.11	**Advances in flight briefing and documentation**	
No.12	**Other- see below**	**Tertiary Grouping**
No.13	**Climate change impacts on aviation**	

- **Category 'Other':** Several Members identified challenges regarding **competition from other providers** (private sector, commercial providers or regionalisation).
- **Especially in Europe** where the challenge to comply with the **cost reduction** targets of Single European Sky, and at the same time comply with **regulations** and to contribute to **increased safety and capacity** by improving meteorological services for ATM.