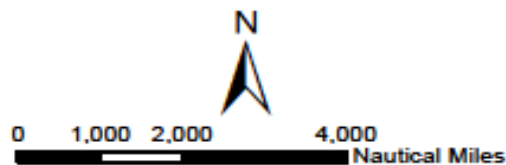
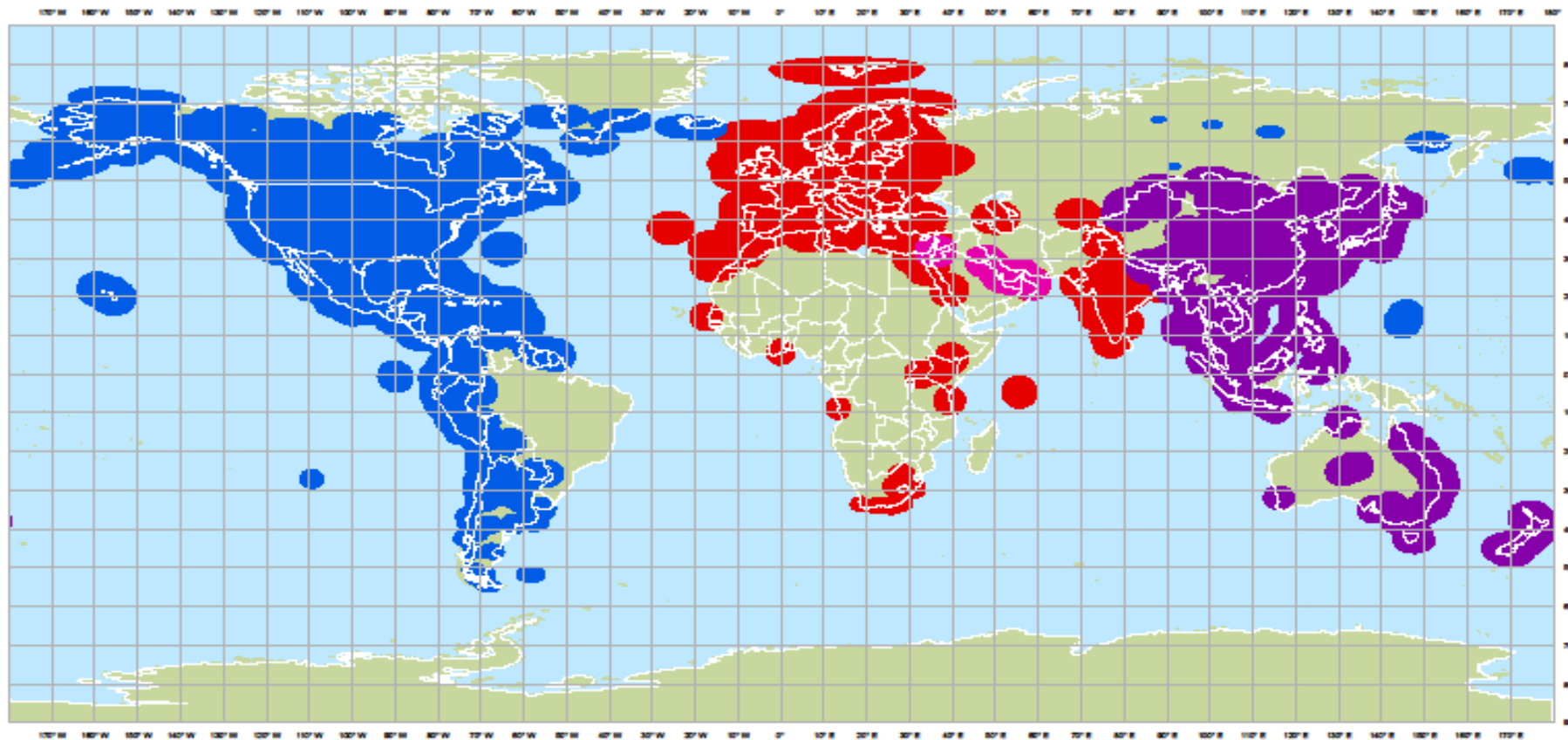


# GLOBALink Service Update

ASRI Aeronautical Frequency Committee  
October 6, 2015

# GLOBALink/VHF Regional Base Frequencies



Notes:  
The map projection is Geographic  
and is for representation only.  
Not to scale. Terrain obstructions  
are not considered.

Legend:

- Frequency 131.550
- Frequency 131.725
- Frequency 131.825
- Frequency 131.450
- Frequency 131.475

## GLOBALink VHF - World Frequency Coverage

Drawn By:  
bsisas

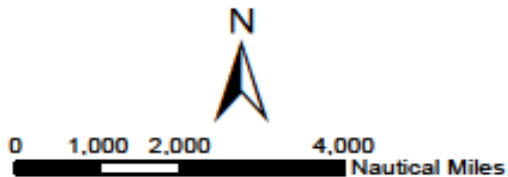
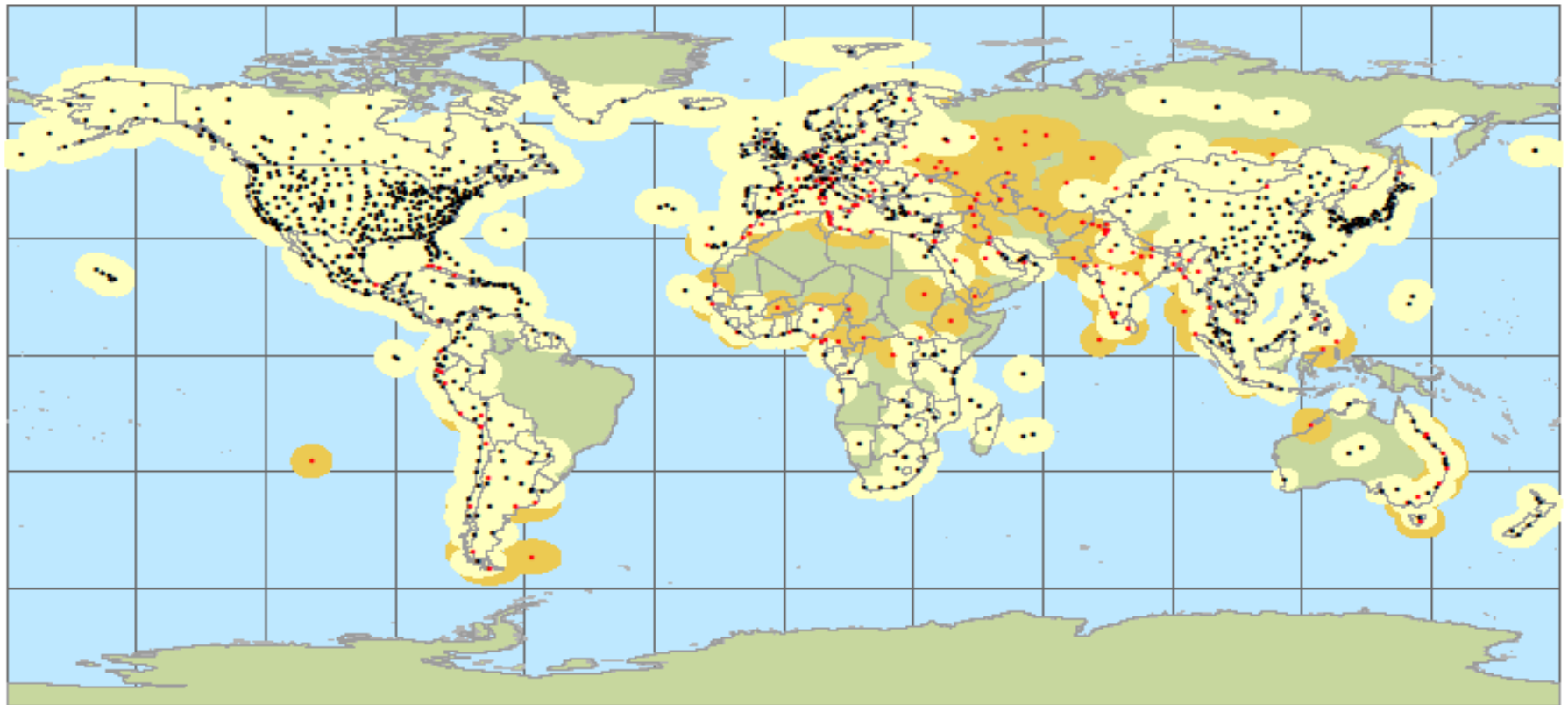
File Name:  
world\_frequency.mxd

Effective Date:  
April 24, 2014

**Rockwell  
Collins**



Building trust every day

# GLOBALink/VHF Major Regional Expansion Underway



Notes:  
The map projection is Geographic and is for representation only. Not to scale.  
Terrain obstructions are not considered.

#### Legend:

-  Operational
-  Planned

## GLOBALink VHF - World

### Operational and Planned Coverage

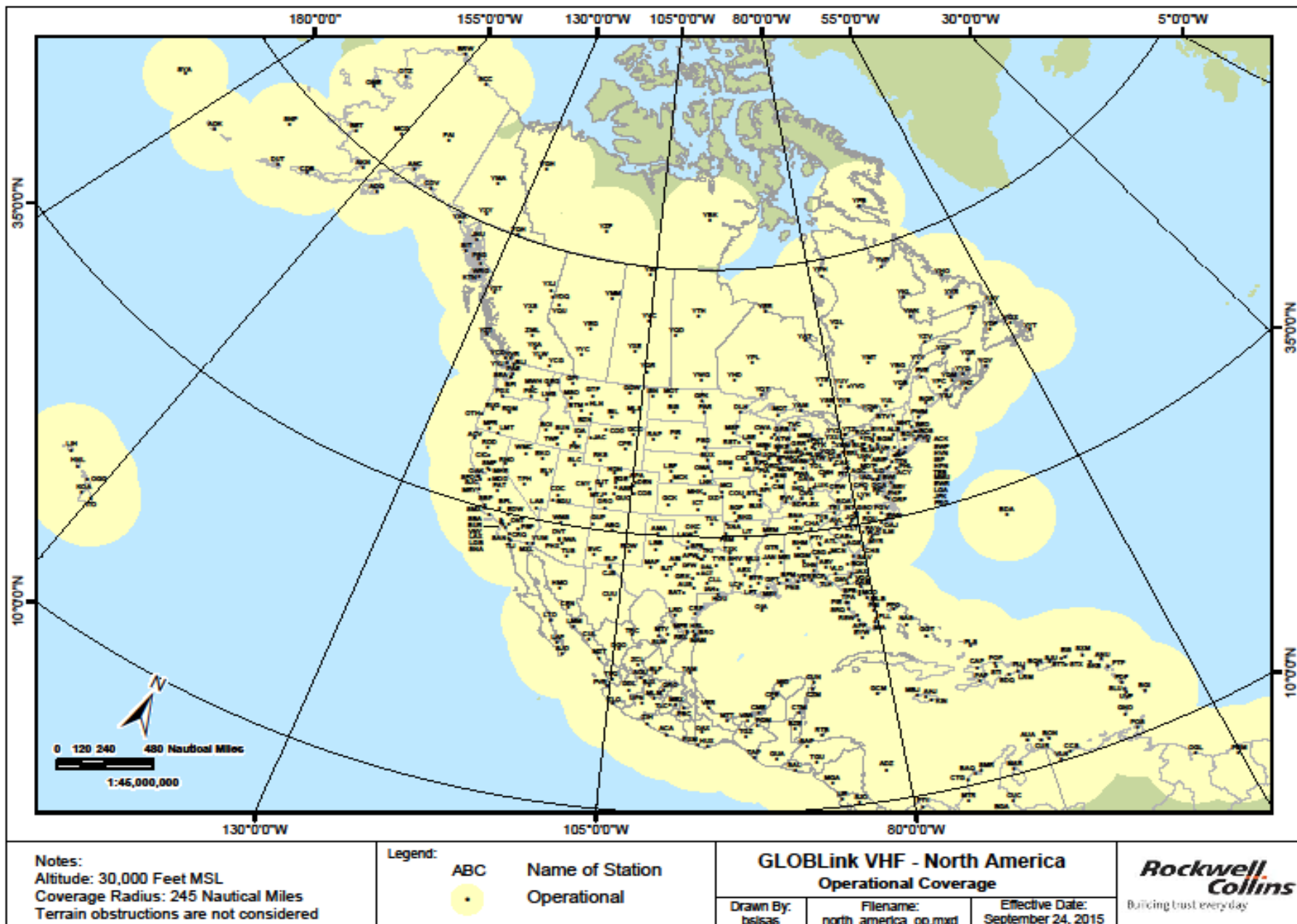
Drawn By:  
bsisas

File Name:  
world\_pl.mxd

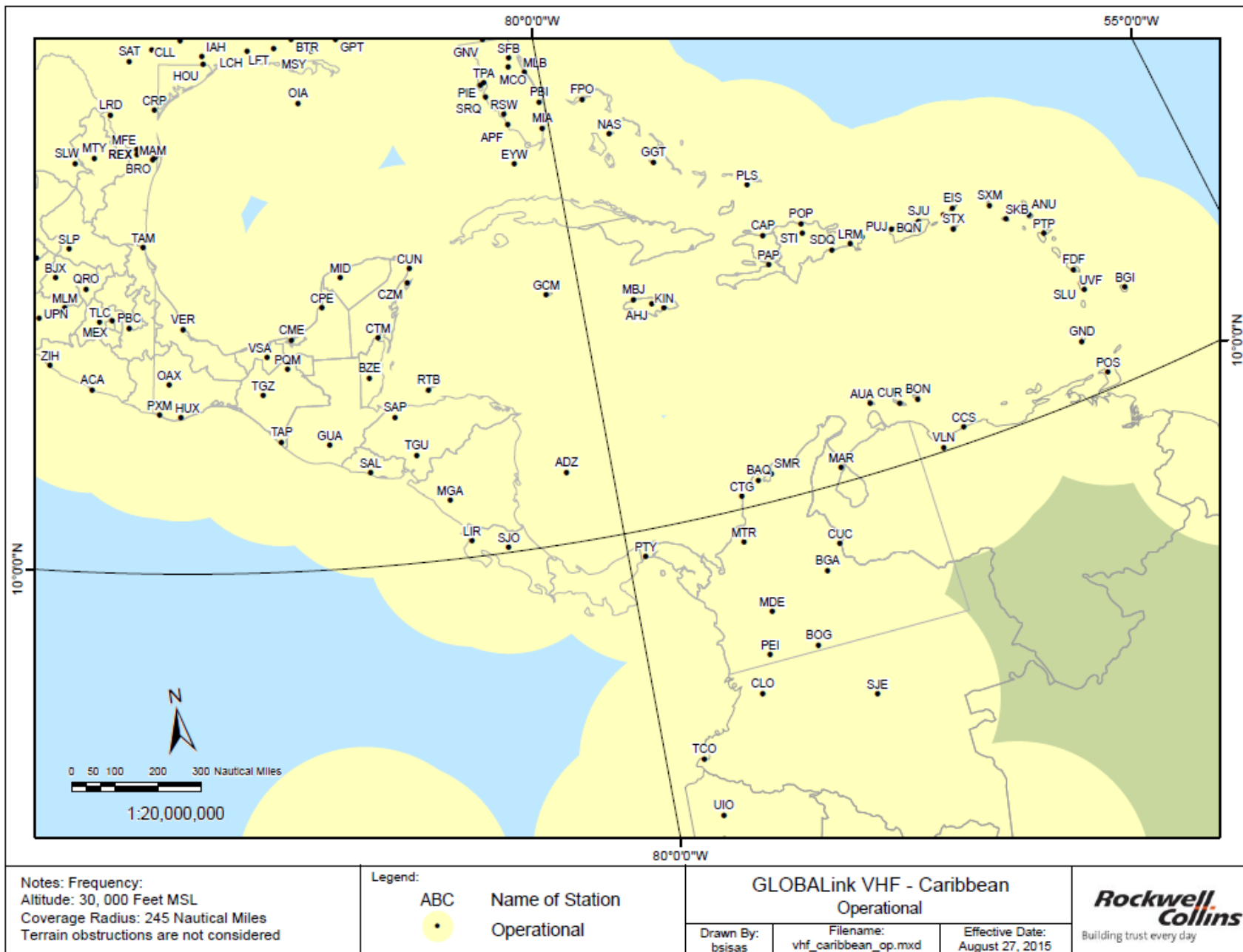
Effective Date:  
September 15, 2015

**Rockwell  
Collins**  
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# GLOBALink/VHF: North America

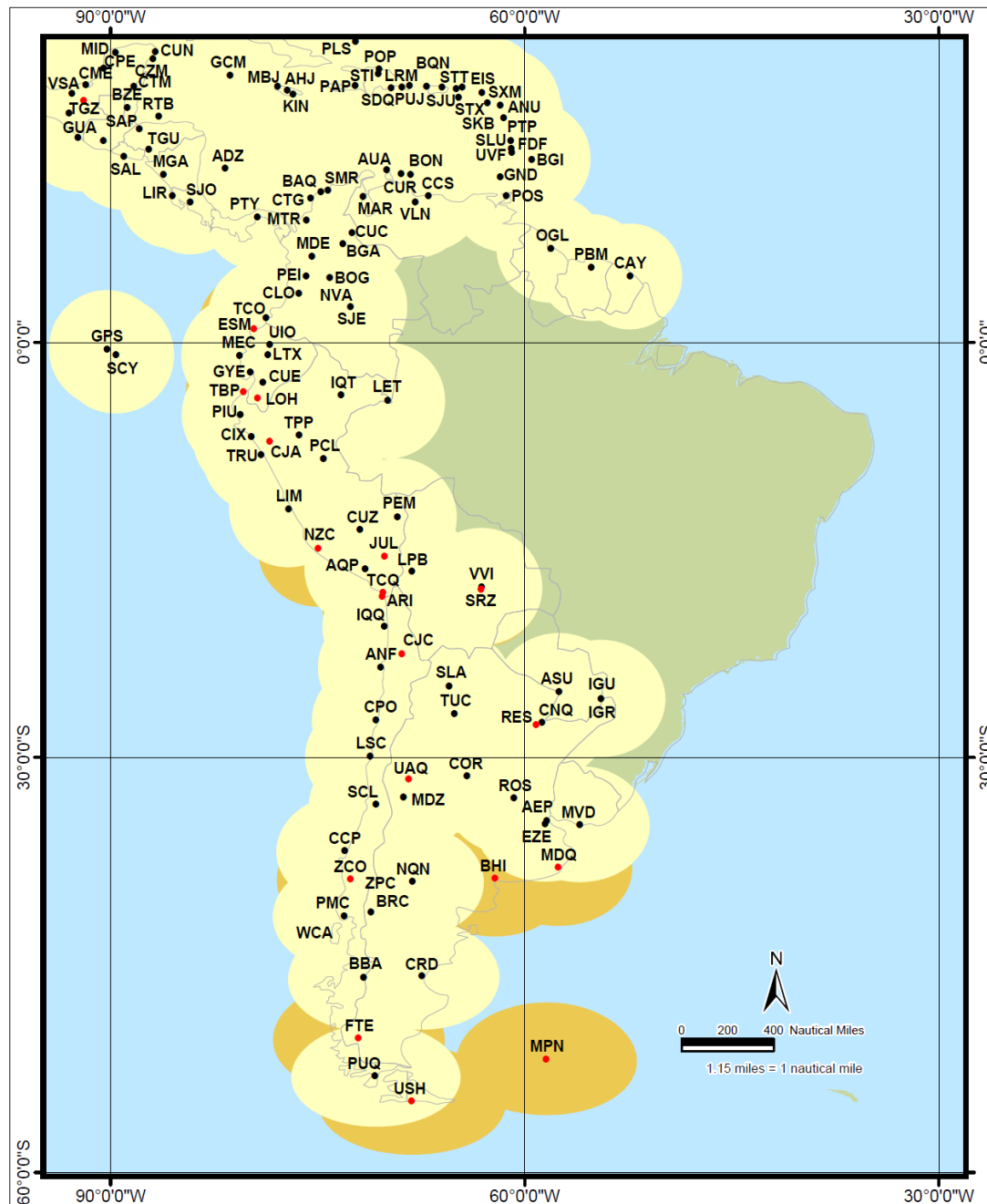


# Caribbean Operational Stations & Coverage



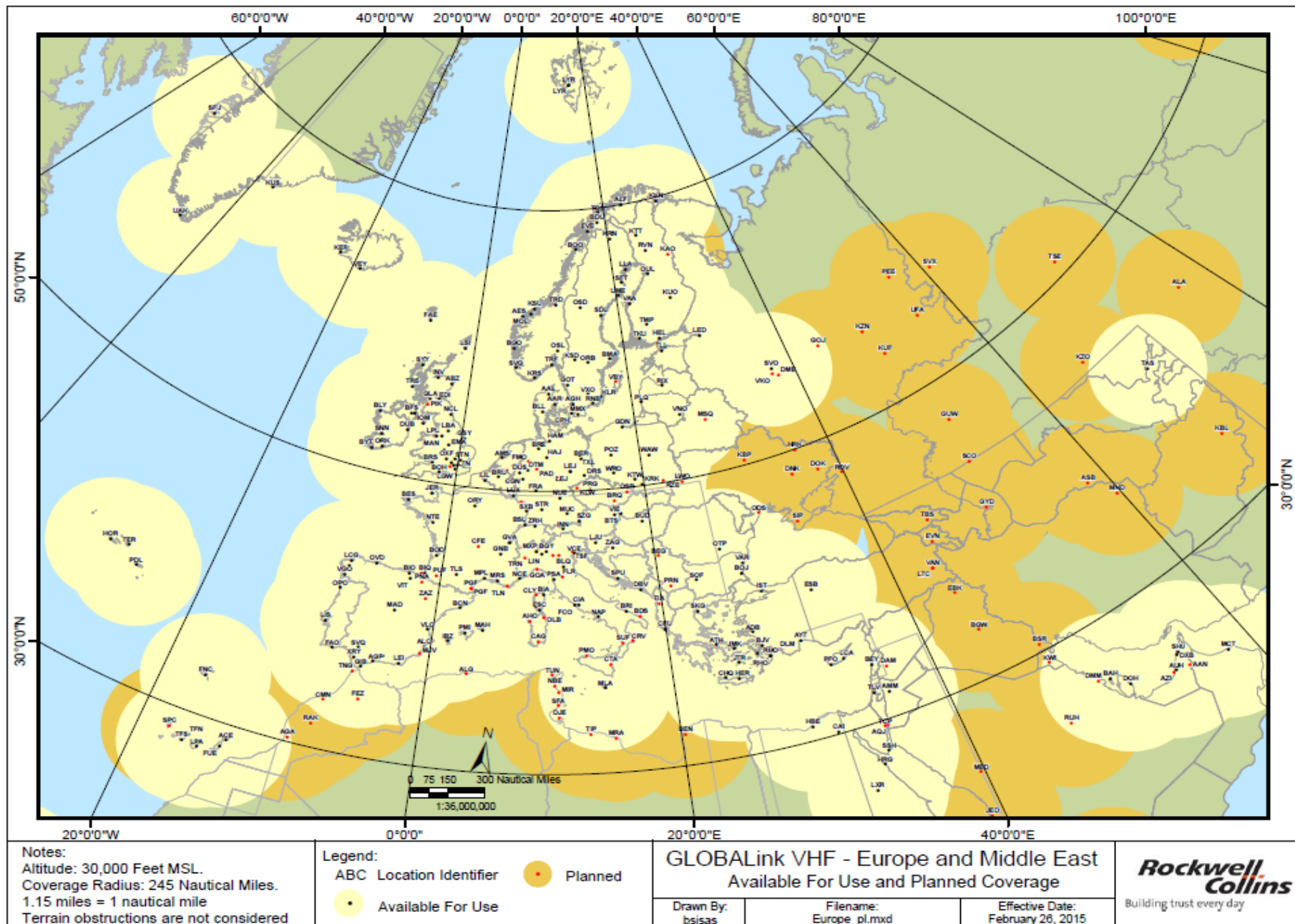
# GLOBALink/VHF: South America

## Current and planned stations

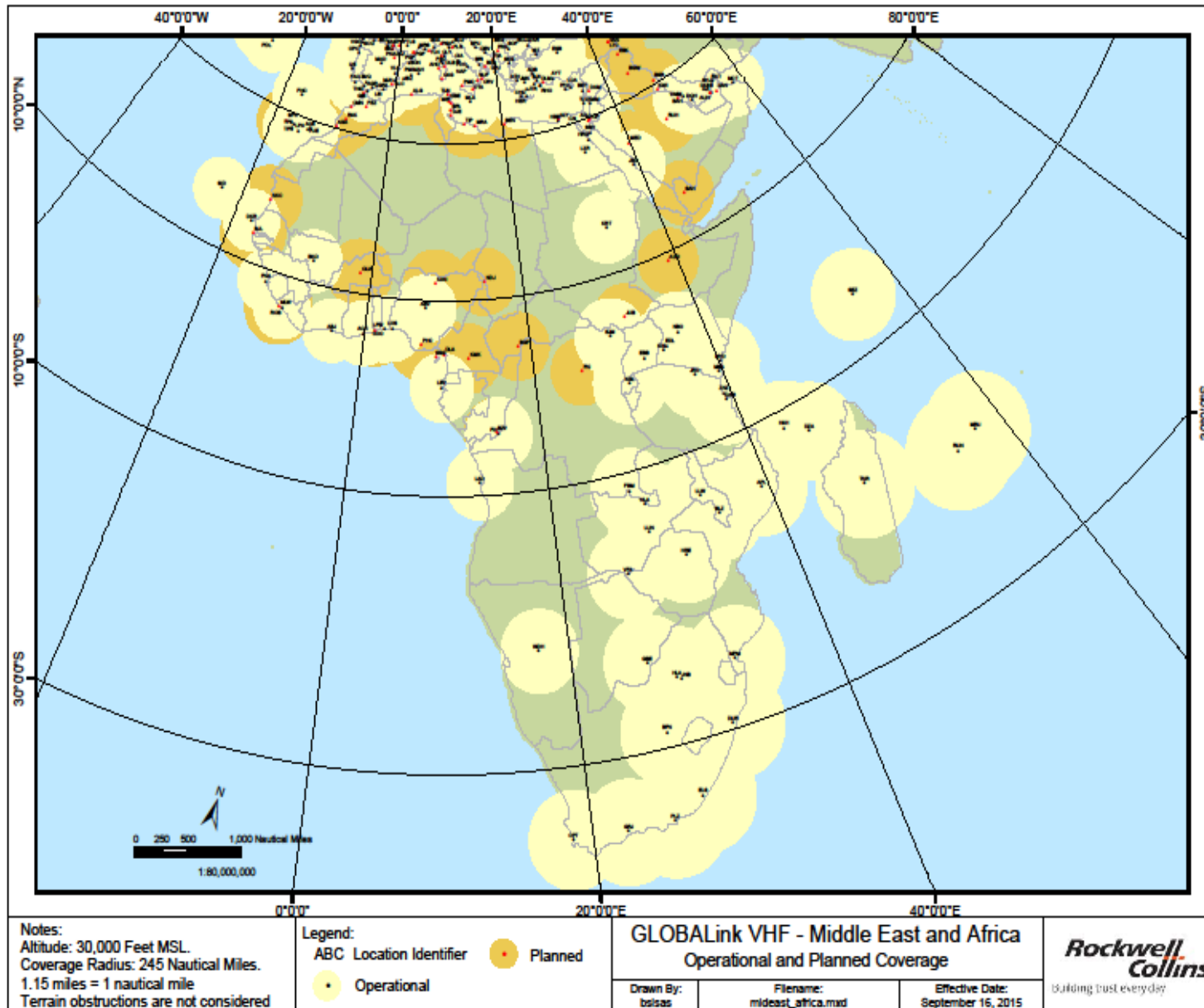




# GLOBALink/VHF European Active and Planned RGS



# GLOBALink/VHF: Middle-East & Africa





# **ATN / VDLM2 Service Update**

**Yanko Videv**

**16 September 2015**

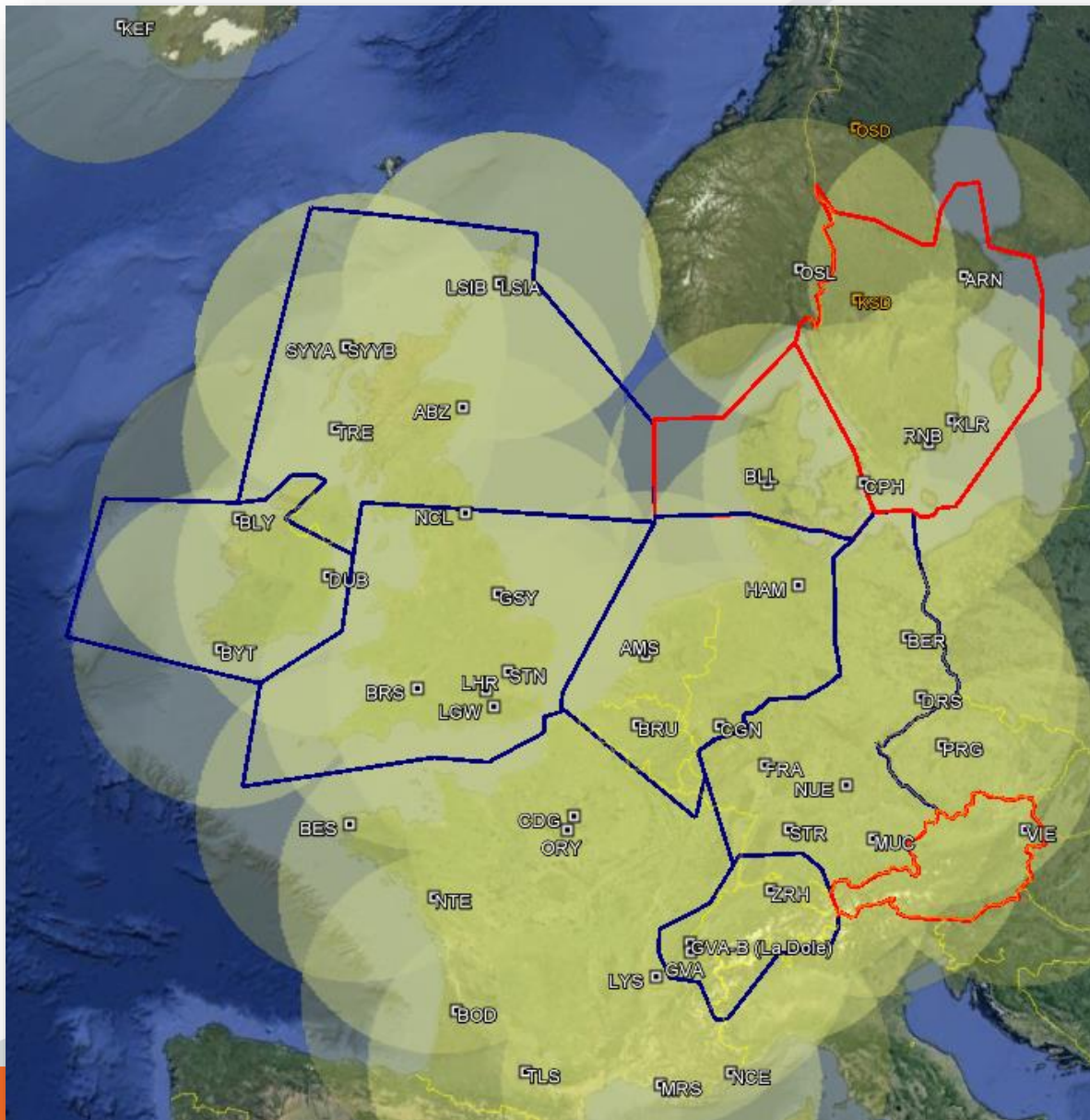






# Topics

- ANSP Deployment Update
- VDL Multi-Frequency Status

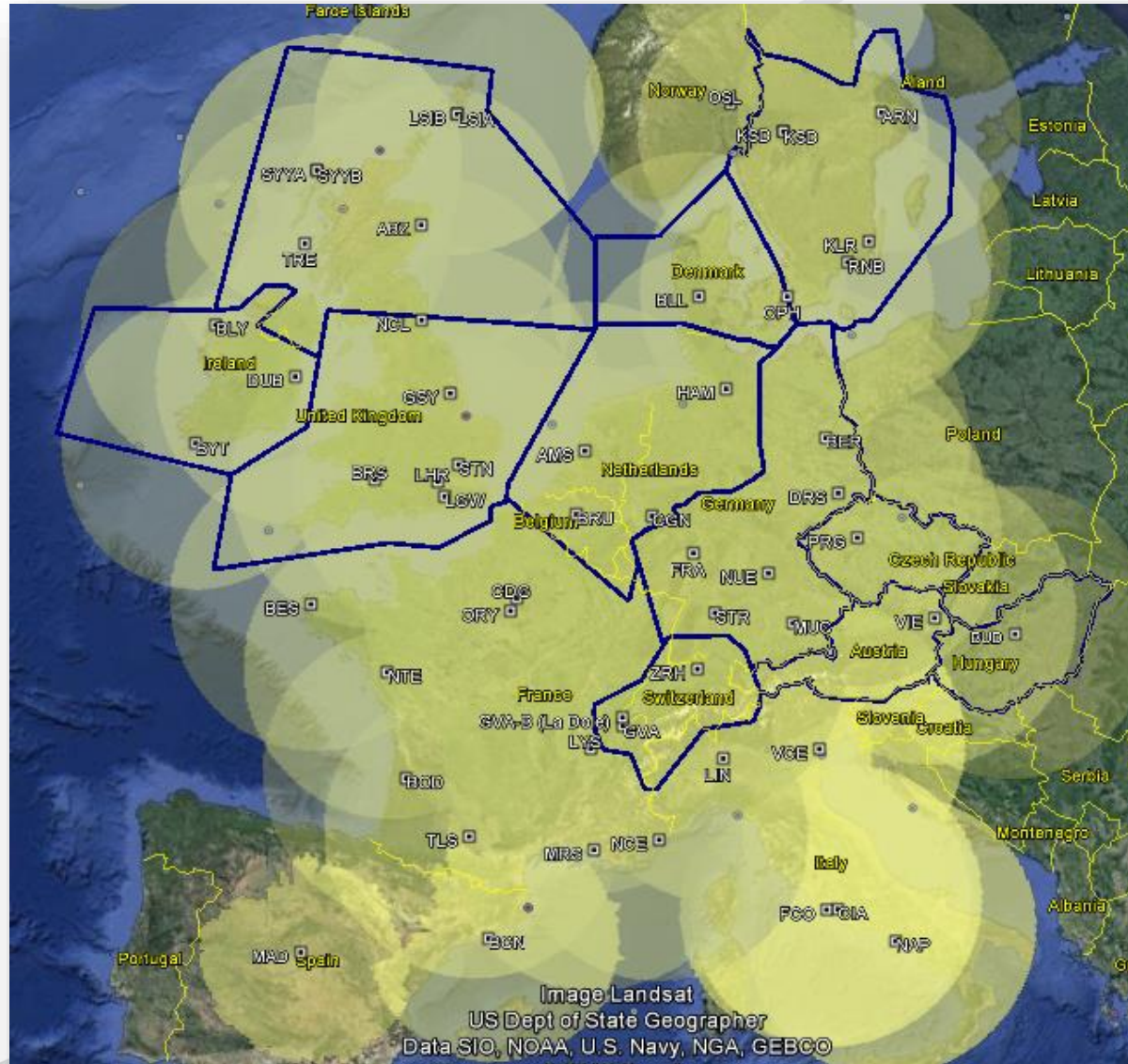
# ANSP Update

# From Last DLUF (Sept 2014)...



-  Operational VDL M2 Coverage
-  Operational CPDLC Airspace
-  Planned VDL M2 Coverage
-  Planned CPDLC Airspace (2014)

# ARINC VDL Coverage 2015 (YTD)



Operational VDL M2  
Coverage

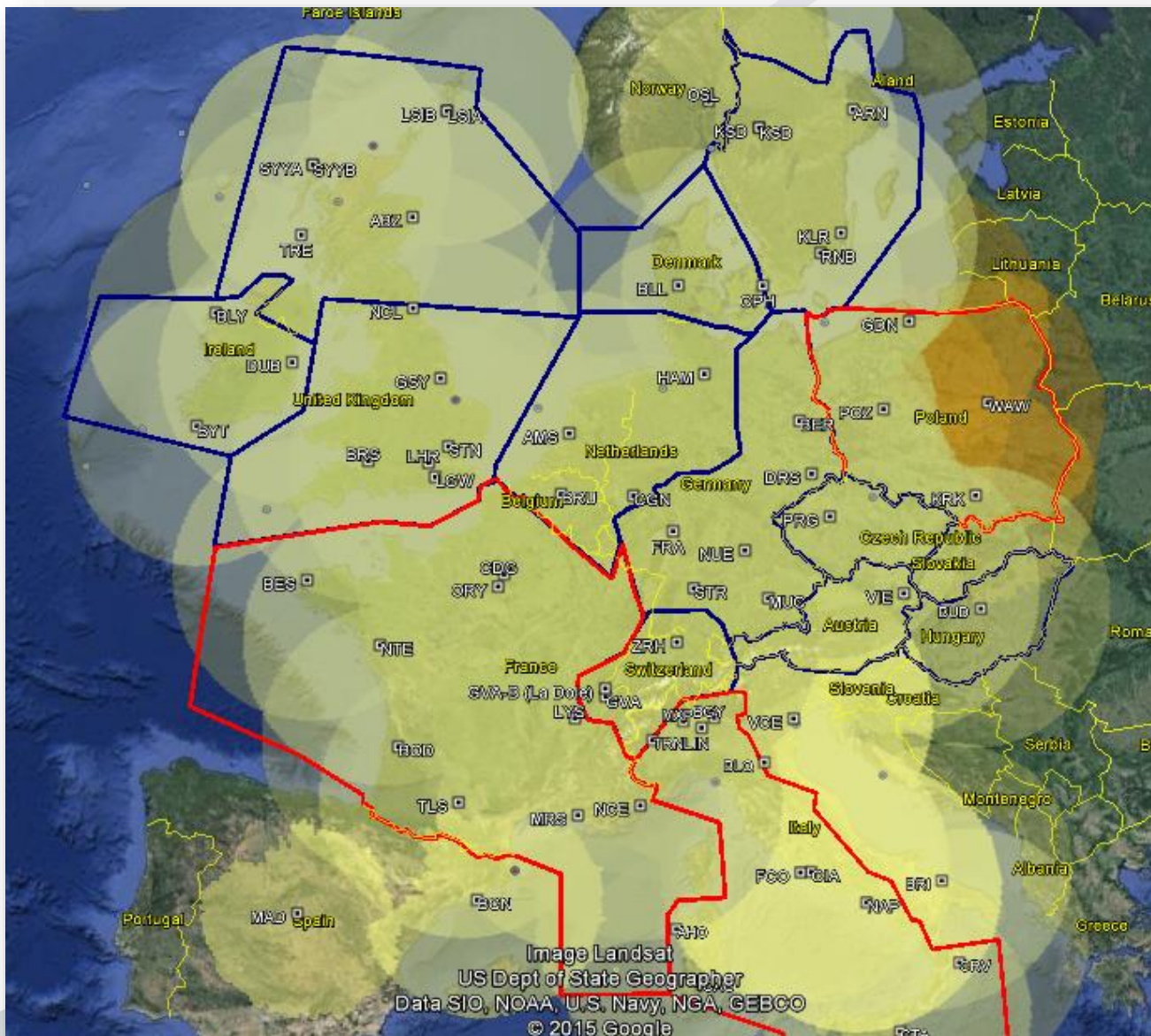


Operational CPDLC  
Airspace

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# ARINC VDL Coverage 2015 – Planned





## Further Expansion to ARINC VDL Coverage

- Expansion of VDL coverage into other countries is dependent on agreements with the respective ANSPs
- There are more than 10 ANSPs (some with multiple ACCs) for which ARINC needs to implement ATN/VDL services
- It is critical to maintain the momentum for deployments
  - It has taken since 2011 to implement 10 ANSPs
  - There are just over 2 years till the deadline in Feb 2018

# VDL Multi-Frequency

# Why VDL Multi-Frequency?

- VDL RF congestion experienced during most hours in busy European airspace
- EASA Report from April 2014 provided a comprehensive analysis of the issues, as well as a number of recommendations
  - The need for multiple VDL frequencies and an optimised RF environment are two key recommendations
- Urgent need for immediate actions to deploy additional VDL frequencies

# What is the Latest from ARINC?

- Ability to support a Ground VDL Frequency
  - Operational validation at LAS and MEM since February 2013
  - In operation in Europe since 2014
- Ability to support an En-Route VDL Frequency
  - ARINC is the only CSP to implement this
  - Operational validation is ongoing both in Europe and in the US
- Retuning performed via GRAIHO
  - Targeting specific aircraft and allowing for channel loading decisions
- These capabilities are an extension of ARINC's longstanding expertise in managing multiple datalink frequencies
  - The basic principles for managing multiple VDL frequencies are the same as ACARS
  - ARINC manages 9 simultaneous ACARS frequencies at ORD alone

## Coverage of 2<sup>nd</sup> VDL Frequency

- Currently operated as an En Route frequency
- The 2<sup>nd</sup> VDL frequency to be expanded at more airports in the future (based on traffic patterns, level of congestion, etc.)



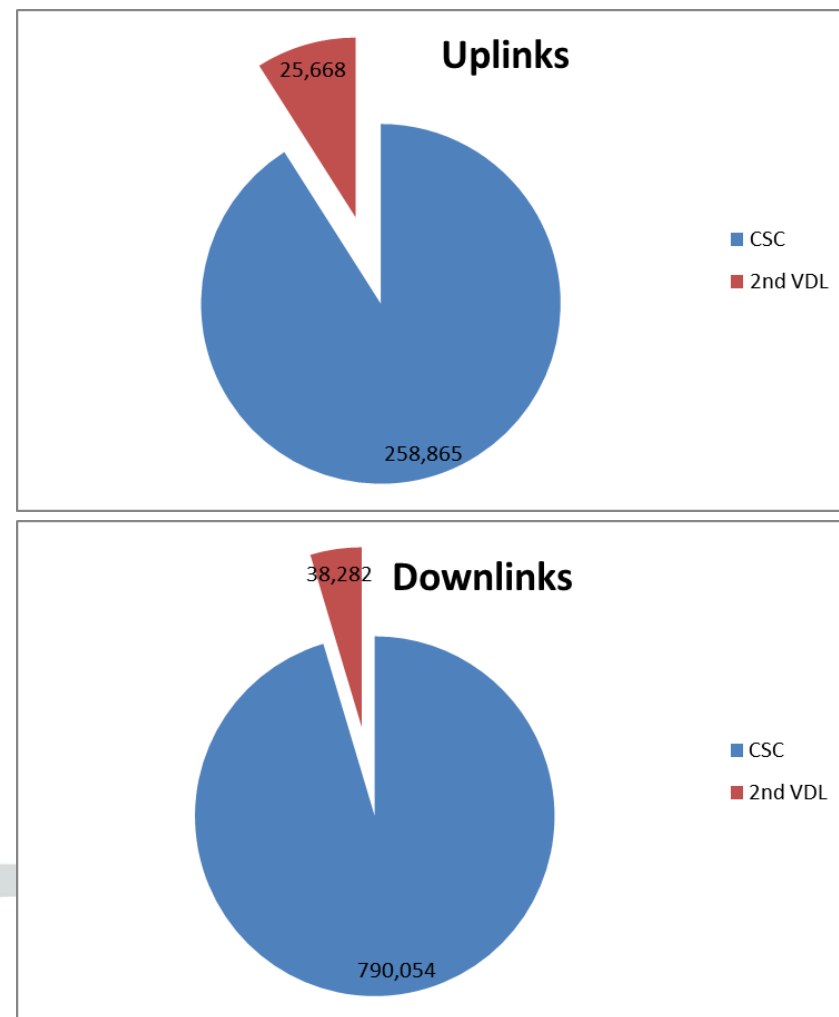
# Frequency Access Management

- GRAIHO allows to retune specific aircraft
  - The ground network decides which frequency is optimal
- During the current implementation and deployment phase ARINC is controlling access to the alternate VDL frequency
  - Support on-going ELSA WA1 activities.
  - Evaluate and troubleshoot any issues that may appear – avionics, ground infrastructure, etc.
- We have started with two airlines configured on the alternate VDL frequency
- For the month of August 2015:
  - Over 300 aircraft have used the 2<sup>nd</sup> ARINC VDL frequency in Europe.
  - Of these aircraft 73 have used CPDLC during the same time frame.



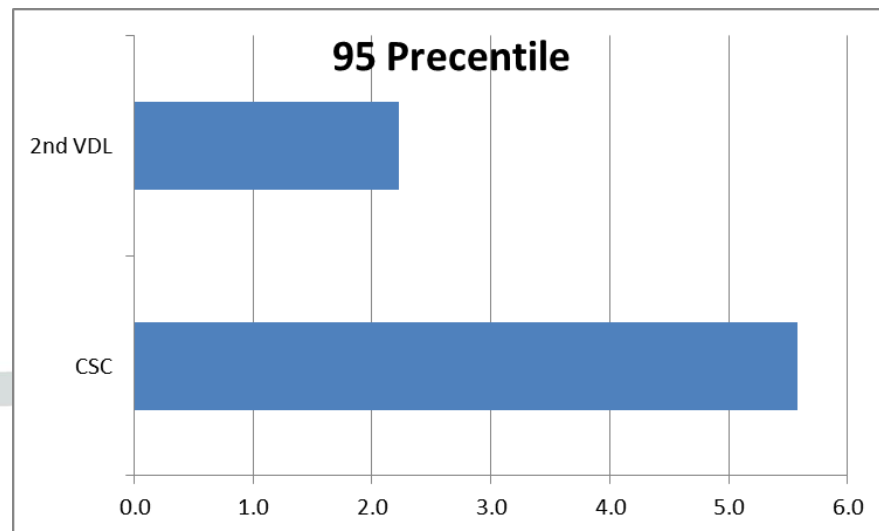
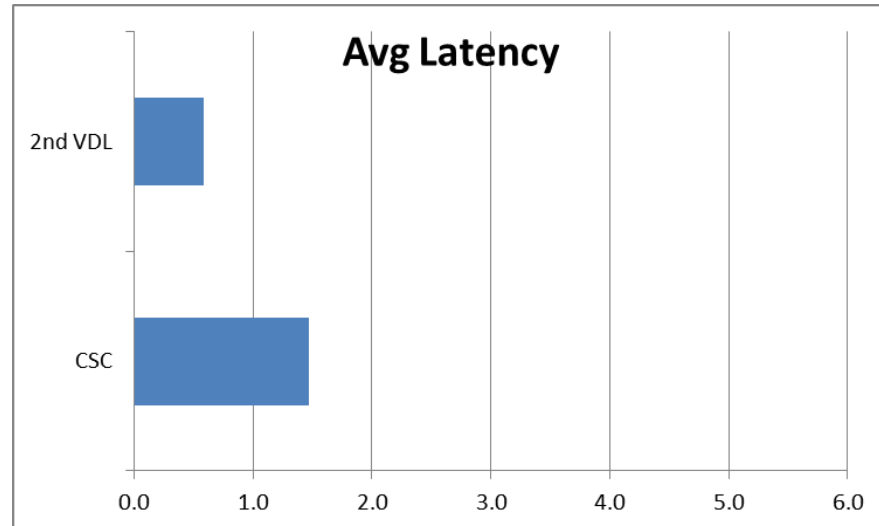
# Channel Usage

- En-Route traffic
- Controlled Access
  - limited number of a/c allowed in the initial stages



# Channel Latency

- Both channels are shared between CSPs
- RF channel utilisation is lower on the 2<sup>nd</sup> VDL frequency and as expected latency is also much better.



# Summary

- A 2<sup>nd</sup> VDL frequency has been deployed in Europe and will continue to be expanded.
- ARINC is using the alternate VDL frequency for both ATS and AOC traffic.
- ARINC is using GRAIHO to retune individual aircraft
- Positive performance observed so far but it is early days and we continue to evaluate the performance
  - Working closely with the ELSA team

**Questions?**