airspace | airside | AIRSERVICES AUSTRALIA

UAP & ATLAS Updates

APANPIRG ADS-B TASK FORCE SEMINAR
Nadi , Fiji

Greg Dunstone
Technology Development
Airservices Australia

Introduction & Overview

- UAP
- ATLAS

UAP focus

- ATC coverage of continent
  - 28 Duplicated Ground stations
  - Originally planned 20 – but less expensive than expected
- Voluntary equipage
- Safety benefit
- Efficiency benefit only when 2 nearby aircraft equipped
- Traffic above FL300
- In low density NRA airspace

Outside radar coverage

Procedural ATC with VHF

Remote VHF outlets

-buildings, (solar) power, maintenance,

-Satellite links to ATC

Duplicated radar coverage in Terminal areas

Single radar coverage elsewhere

ADS-B SITES

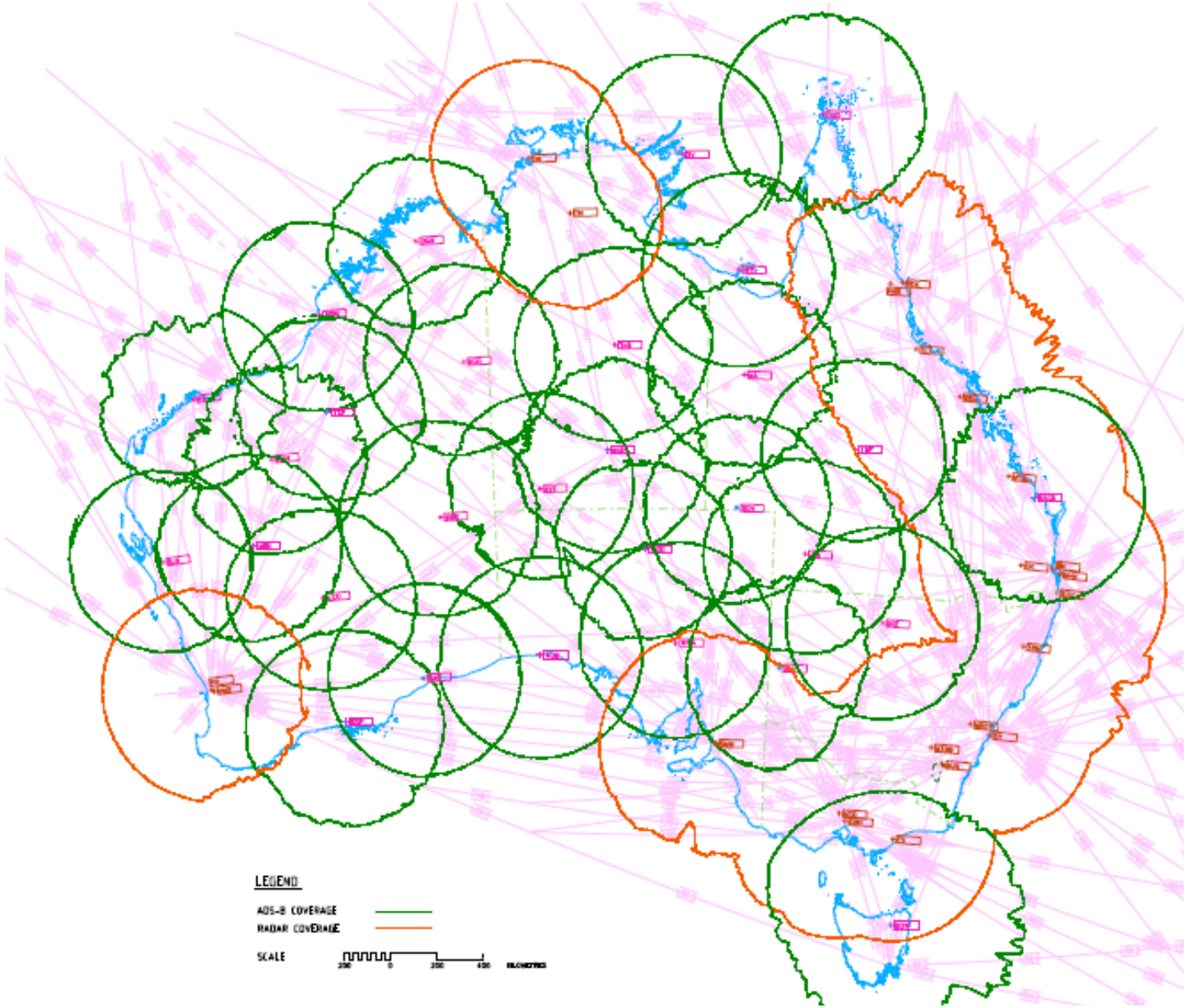
AS
AYE
BGO
BRM
CAG
DGN
ESP
JAK
KA
LEO
LRE
MA
MTI
MXL
NUB
NWN
OOD
TNK
WBR
WRA

LEGEND

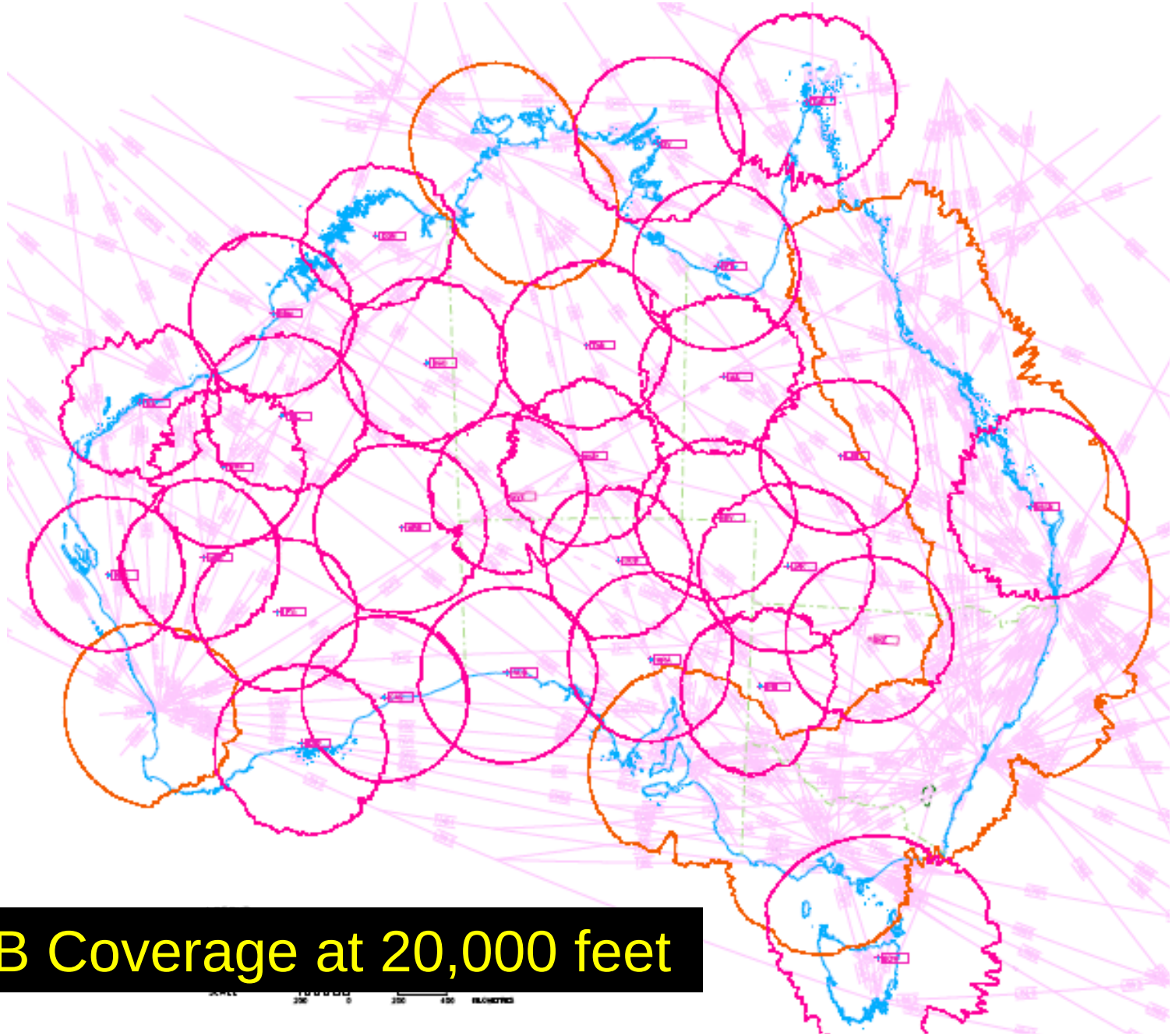
ADS-B COVERAGE

RADAR COVERAGE

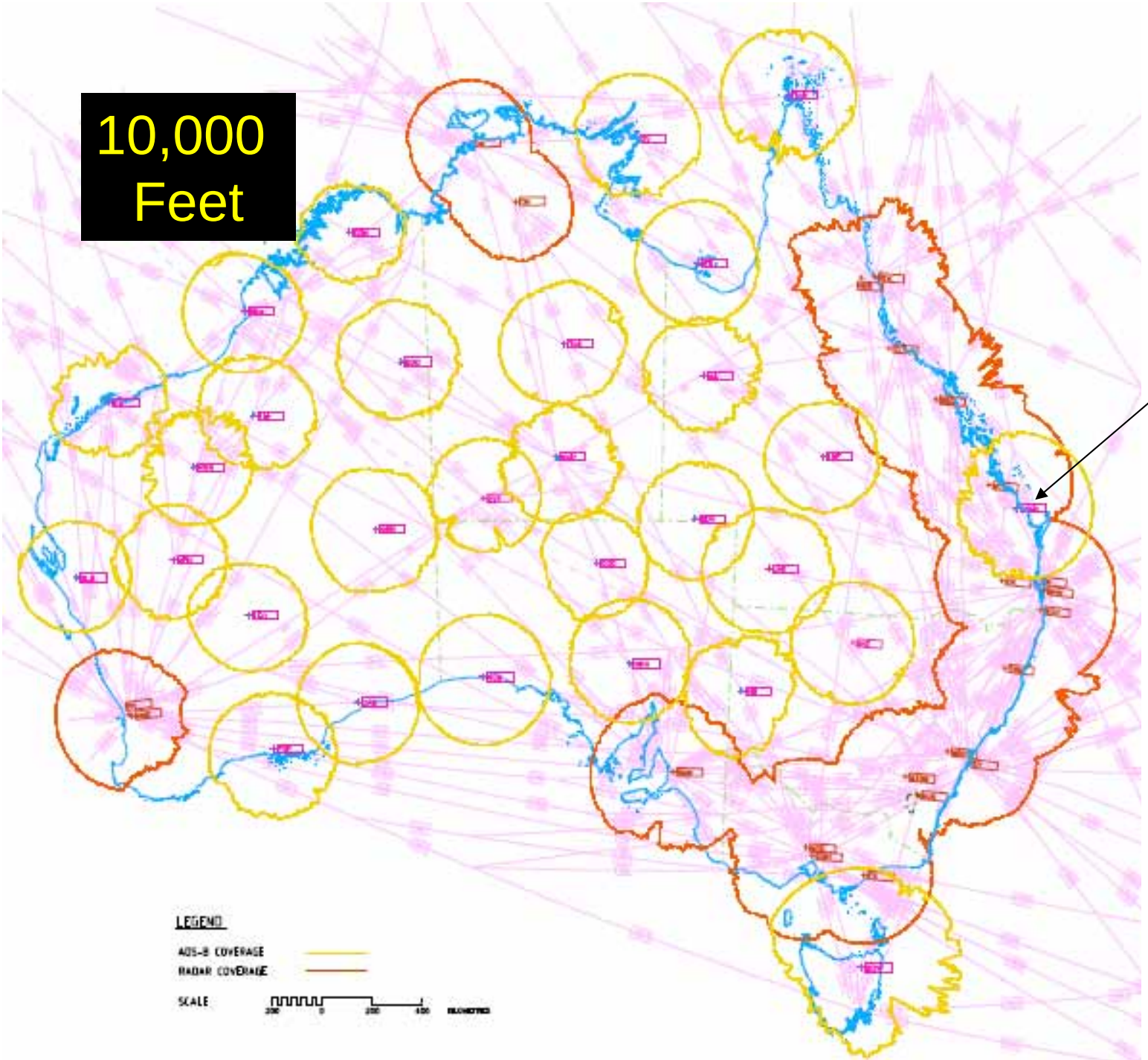
SCALE 200 0 200 400 KILOMETRES



ADS-B Coverage at 30,000 feet

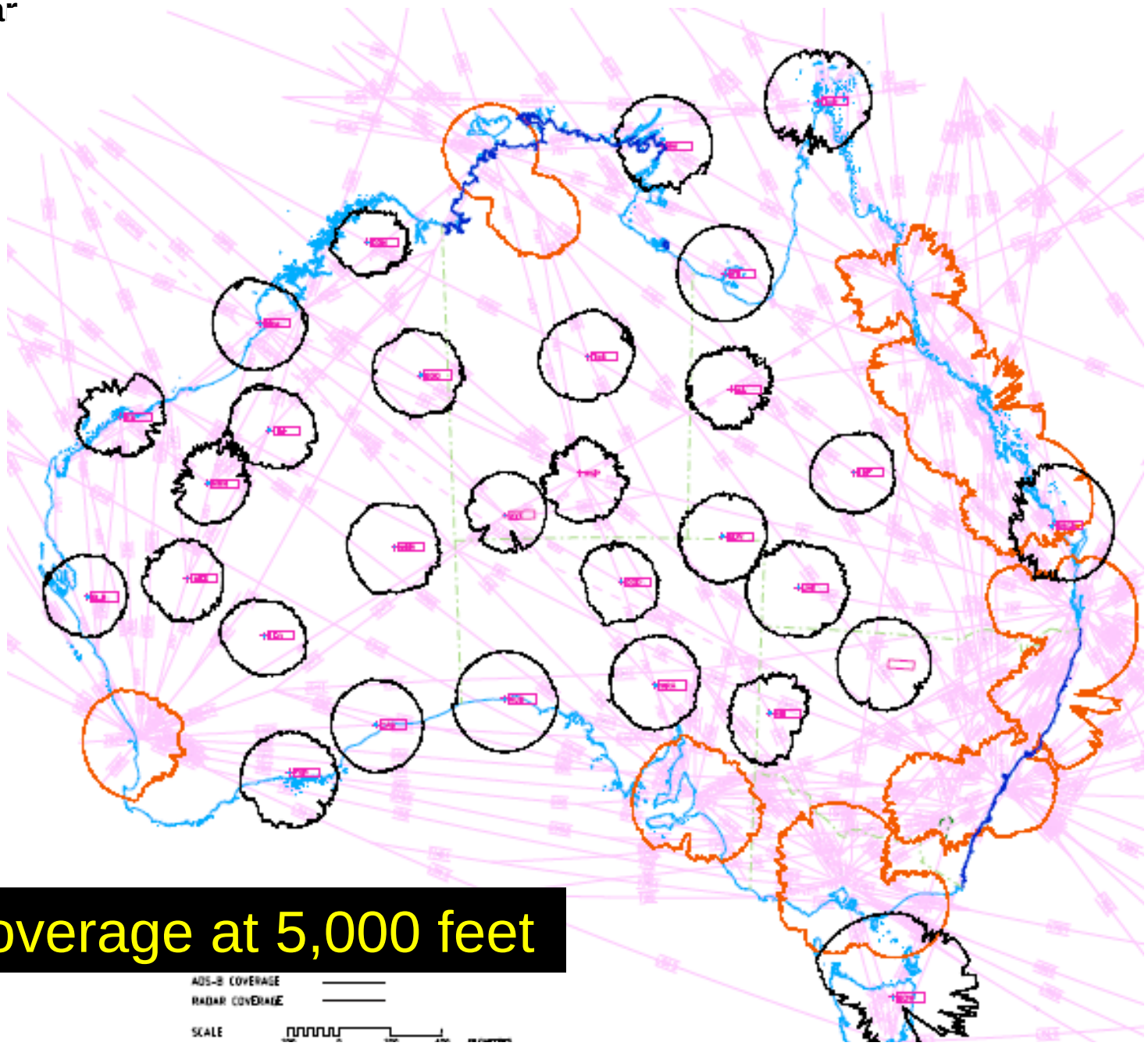


ADS-B Coverage at 20,000 feet


10,000
Feet
Bundaberg
LEGEND
ADS-B COVERAGE
RADAR COVERAGE
SCALE

ORANGE= Radar
Black = ADS-B

To Ground Level at
BROOME
YULARA
KARRATHA
ALICE SPRINGS



ADS-B Coverage at 5,000 feet


Some sites power by Solar cells
ADS-B takes only 100 watts!


ADS-B Antennas to go on
existing communication towers


Our 28 Duplicated Ground stations have arrived
3 Ground stations
5 Ground stations
DO260A and DO260 compliant

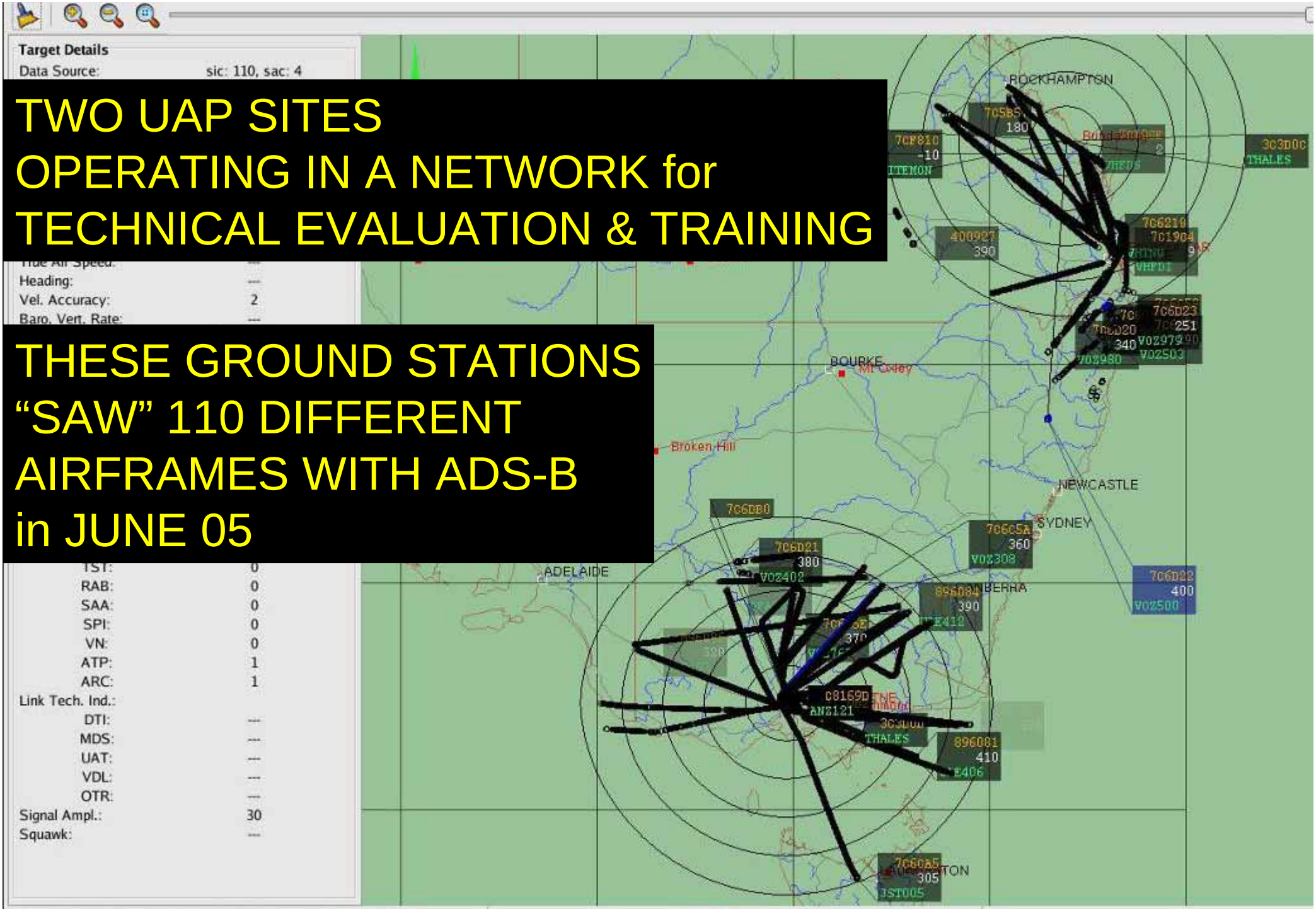
Airlines are equipping

Thank you Europe : for EHS, ELS mandate

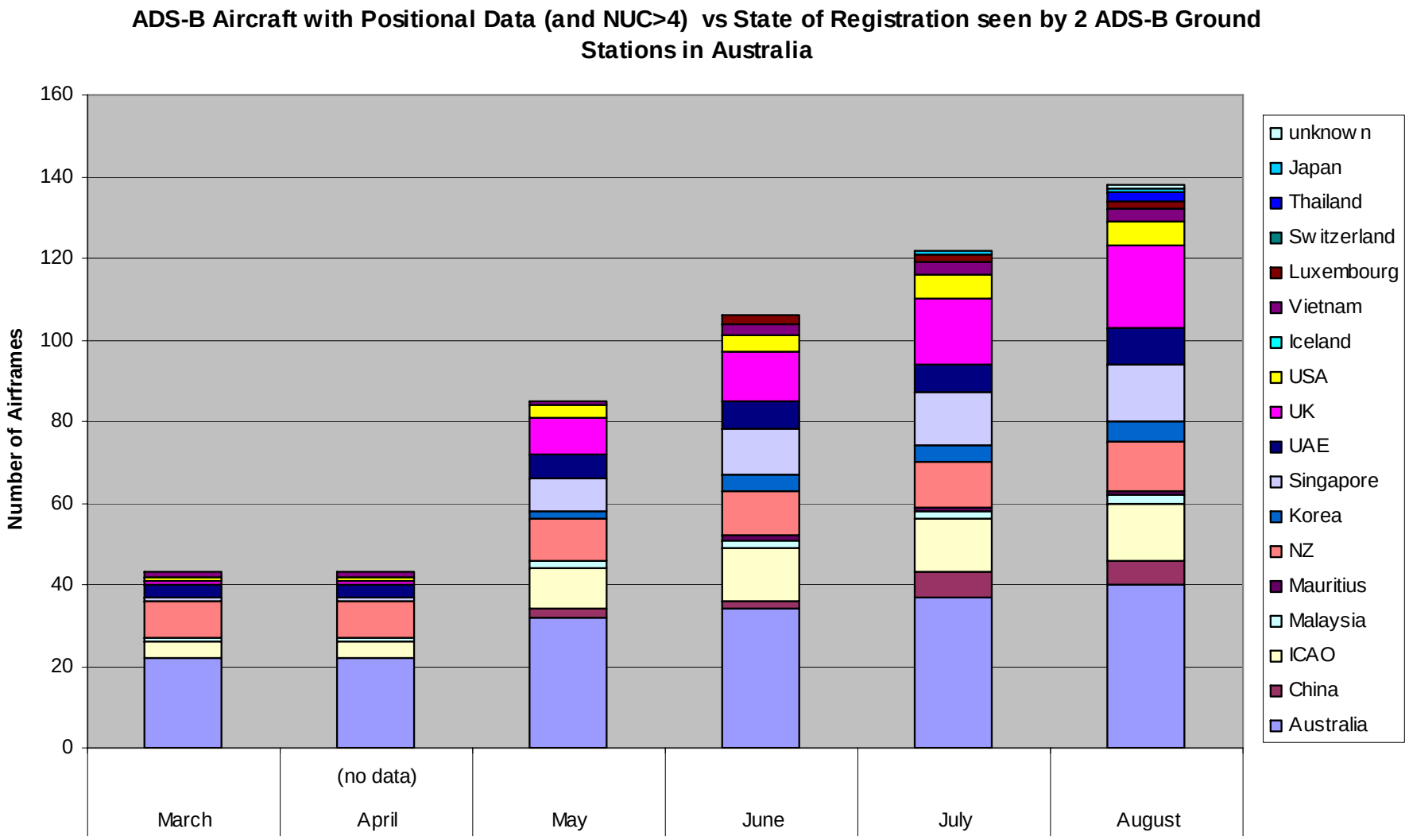
- Jetstar
  - Jetstar expected to fully fit 23 A320s.

- Virgin Blue : 737-800s
  - Already has >35% transmitting
  - All future deliveries equipped & retrofit of whole fleet being considered

- Internationals
  - Many equipped including
    - ✈ Singapore, Vietnam, Mauritius, British, Pacifc Blue, New Zealand, Emirates


Target Details
Data Source: sic: 110, sac: 4
Heading:
Vel. Accuracy: 2
Baro. Vert. Rate:
TST: 0
RAB: 0
SAA: 0
SPI: 0
VN: 0
ATP: 1
ARC: 1
Link Tech. Ind.:
DTI:
MDS:
UAT:
VDL:
OTR:
Signal Ampl.: 30
Squawk:
ROCKHAMPTON
BOURKE
Broken Hill
NEWCASTLE
SYDNEY
ADELAIDE
BERRA
THALES
TWO UAP SITES
OPERATING IN A NETWORK for
TECHNICAL EVALUATION & TRAINING
THESE GROUND STATIONS
“SAW” 110 DIFFERENT
AIRFRAMES WITH ADS-B
in JUNE 05

Airframes detected this year



ADS-B Upper Airspace Program

Transition Plan

NAME AND POSITION	SIGNATURE	DATE
Prepared by: Bob Brown **Senior Operations Specialist**	Robert B. Brown	16/8/05
Approved by:Greg Dunstone **Program Director**	Greg Dunstone	5/9/05
Agreed by: Steve Shaw **Manager, Brisbane Centre**		16/8/05.
Agreed by: Greg Hood **Manager, Melbourne Centre**	Greg Hood	2-9-05
Agreed by: Susan Smith **Manager - Air Traffic Control Capability**		2-9-05
Agreed by: Jason Harfield **Head Air Traffic Controller**		22 Aug 05
Endorsed by: Peter Evans **Program Sponsor**		2-9-05
Approved by: Andrew Fleming **General Manager - Air Traffic Management**		5/9/05

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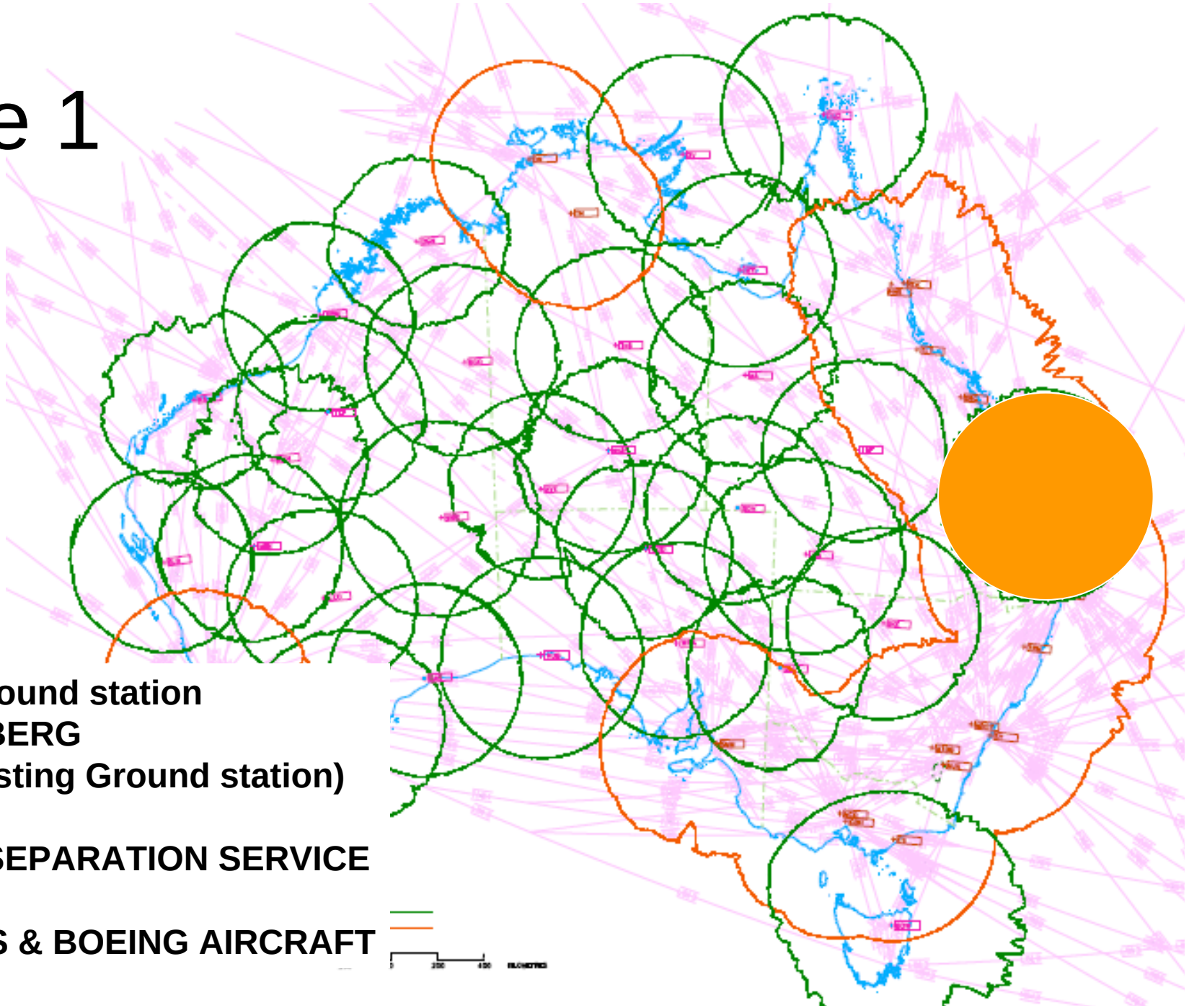
Stage 1



USE UAP Ground station
for BUNDABERG
(Replace existing Ground station)

CONTINUE SEPARATION SERVICE

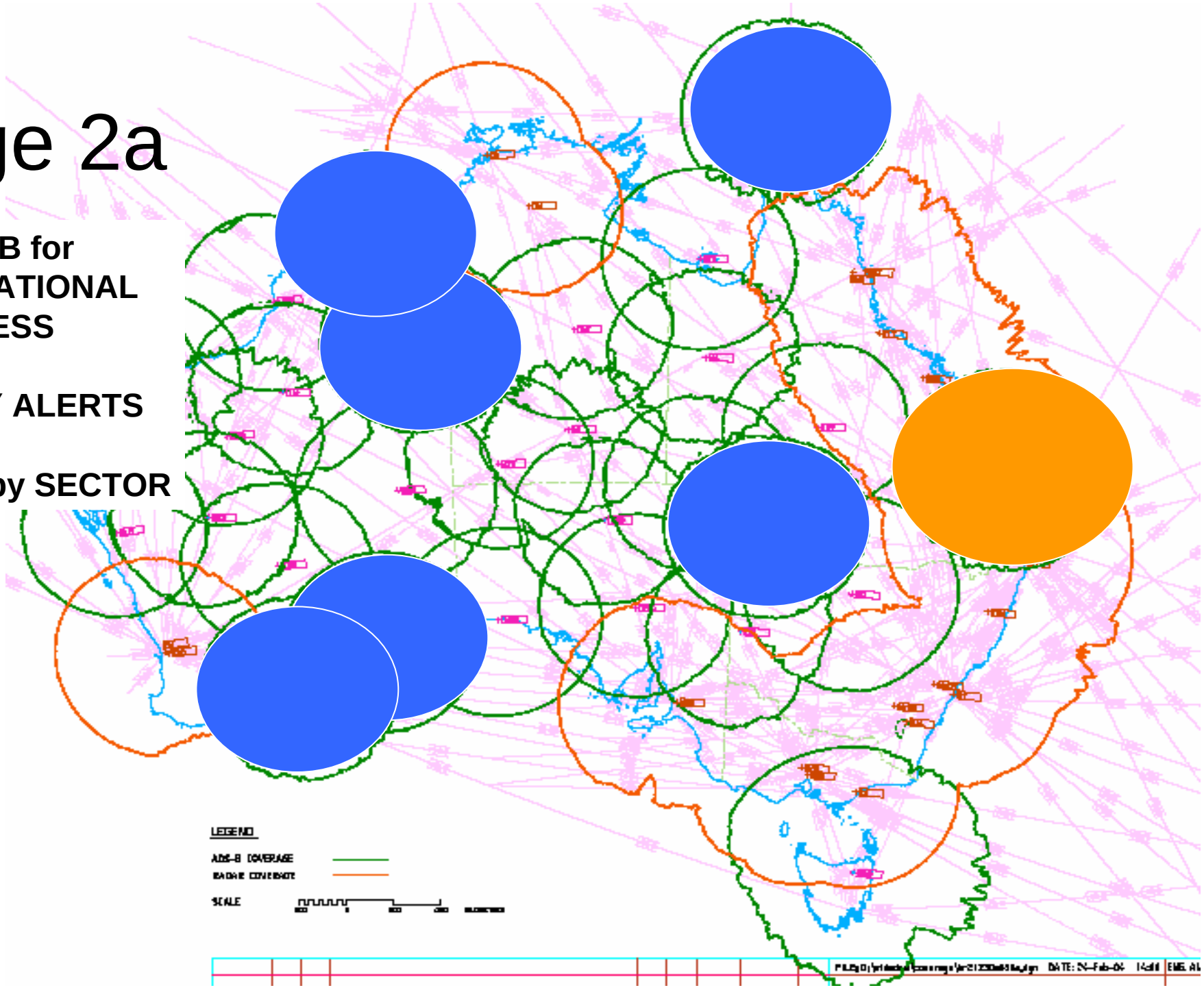
ADD AIRBUS & BOEING AIRCRAFT

Stage 2a

USE ADS-B for ATC SITUATIONAL AWARENESS

& SAFETY ALERTS

SECTOR by SECTOR

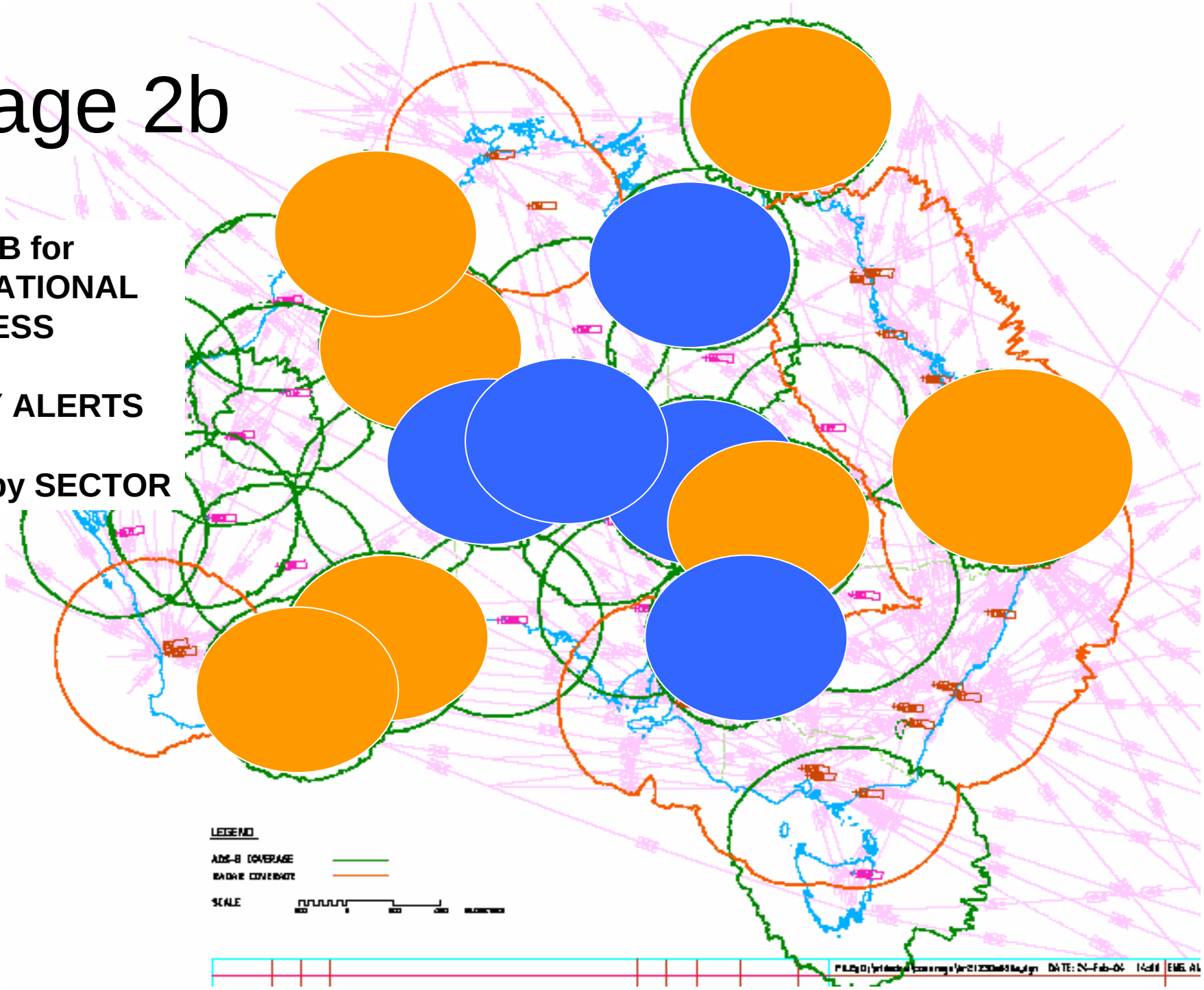


Stage 2b

USE ADS-B for ATC SITUATIONAL AWARENESS

& SAFETY ALERTS

SECTOR by SECTOR

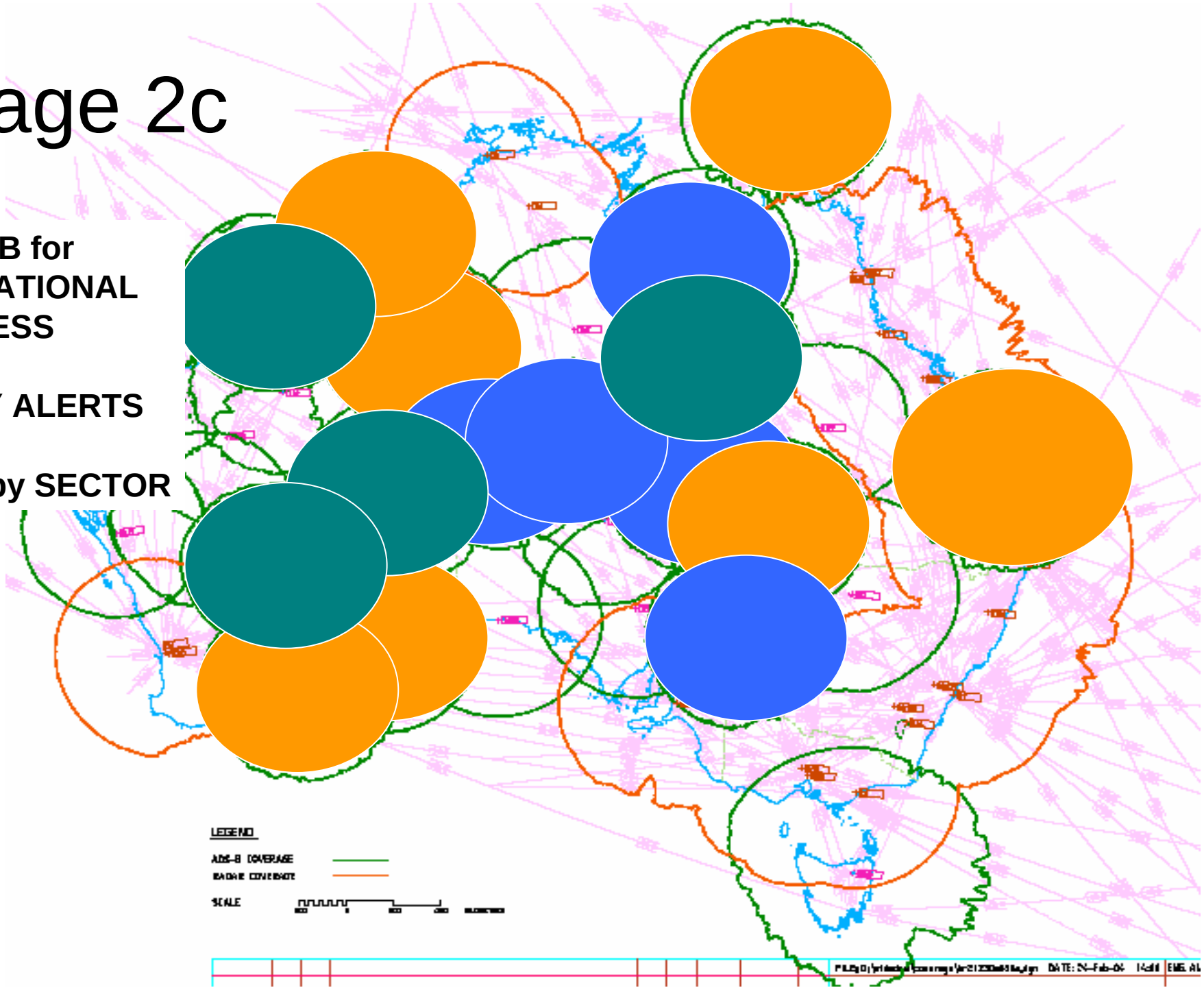


Stage 2c

USE ADS-B for ATC SITUATIONAL AWARENESS

& SAFETY ALERTS

SECTOR by SECTOR

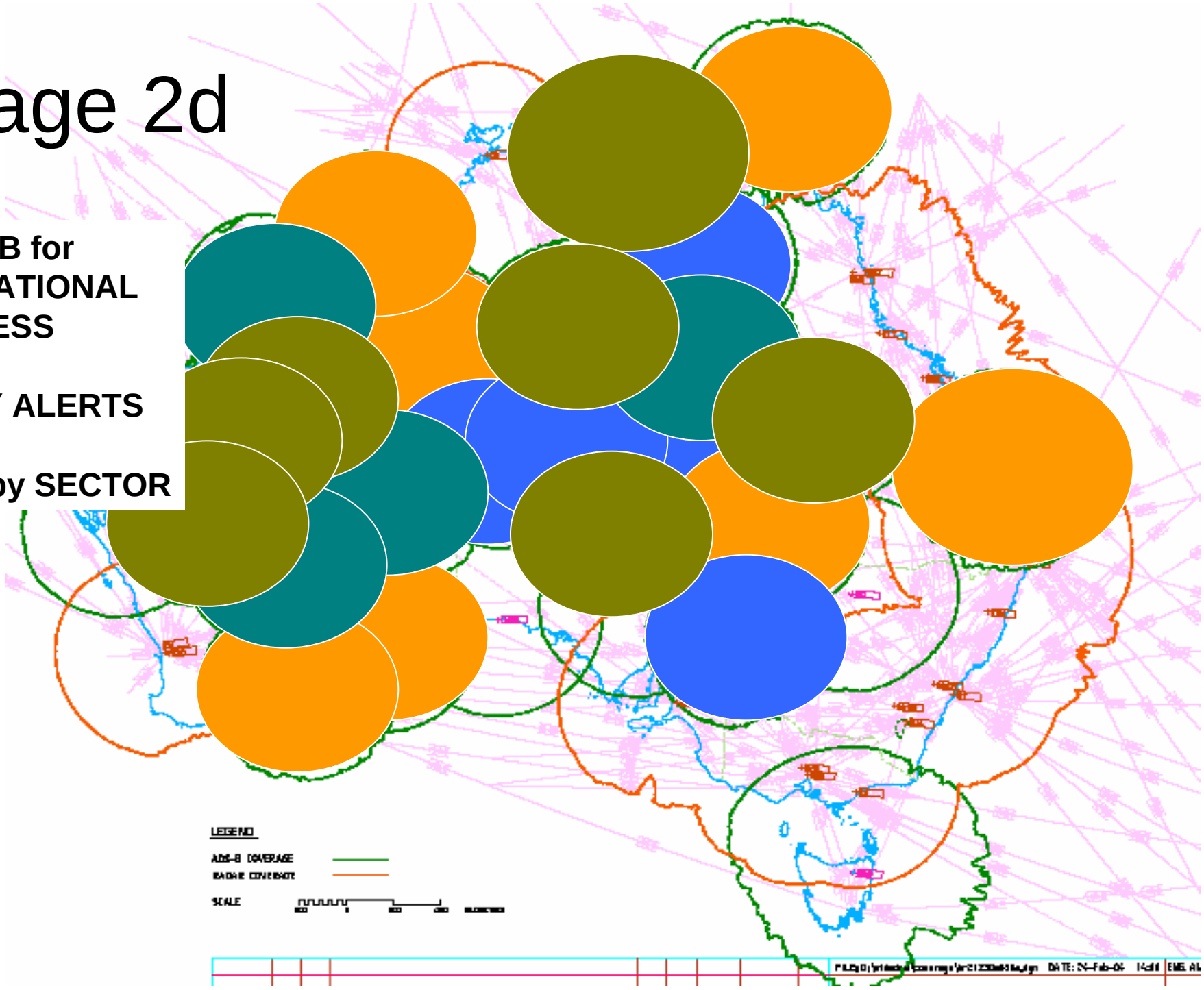


Stage 2d

USE ADS-B for ATC SITUATIONAL AWARENESS

& SAFETY ALERTS

SECTOR by SECTOR

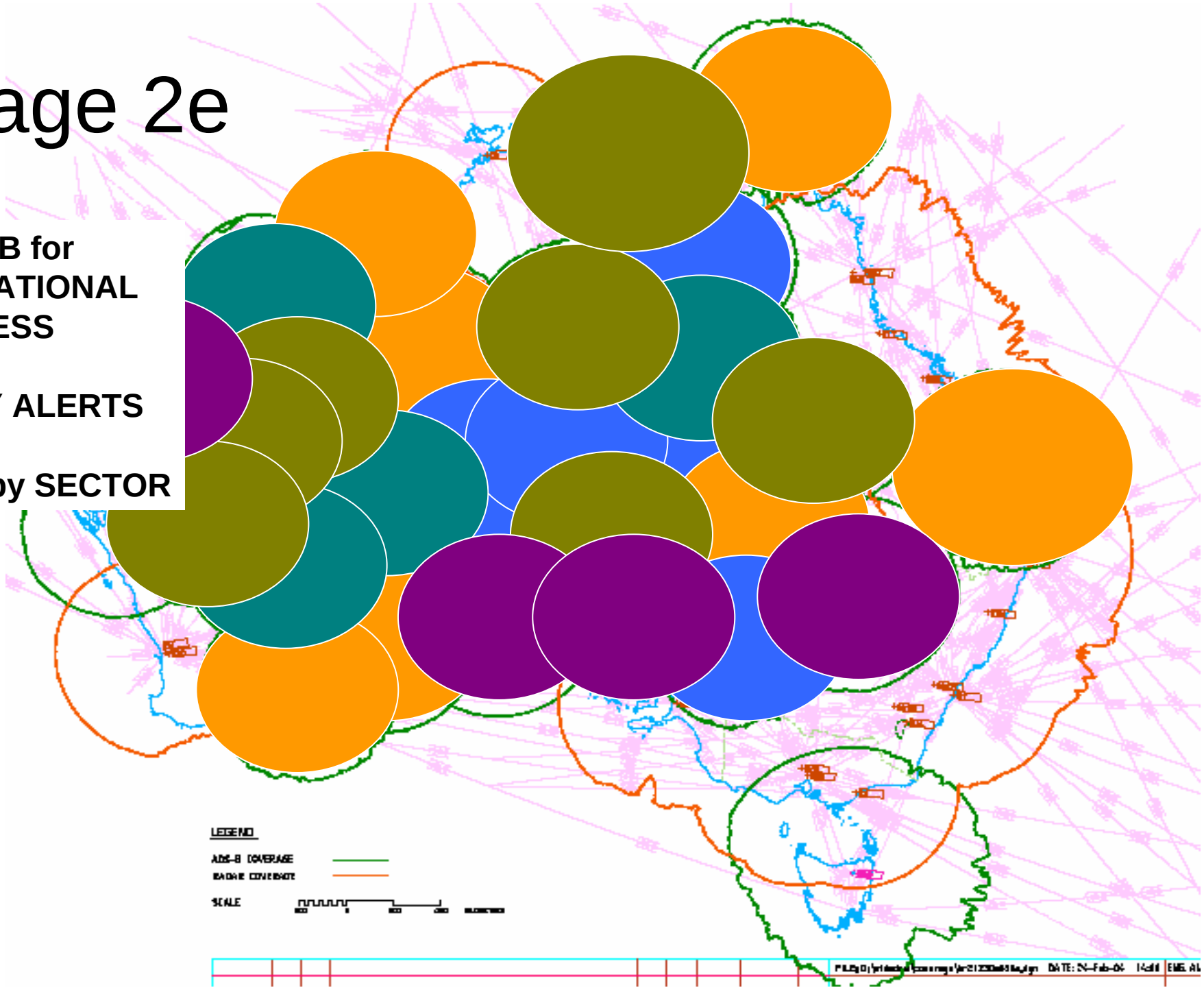


Stage 2e

USE ADS-B for ATC SITUATIONAL AWARENESS

& SAFETY ALERTS

SECTOR by SECTOR

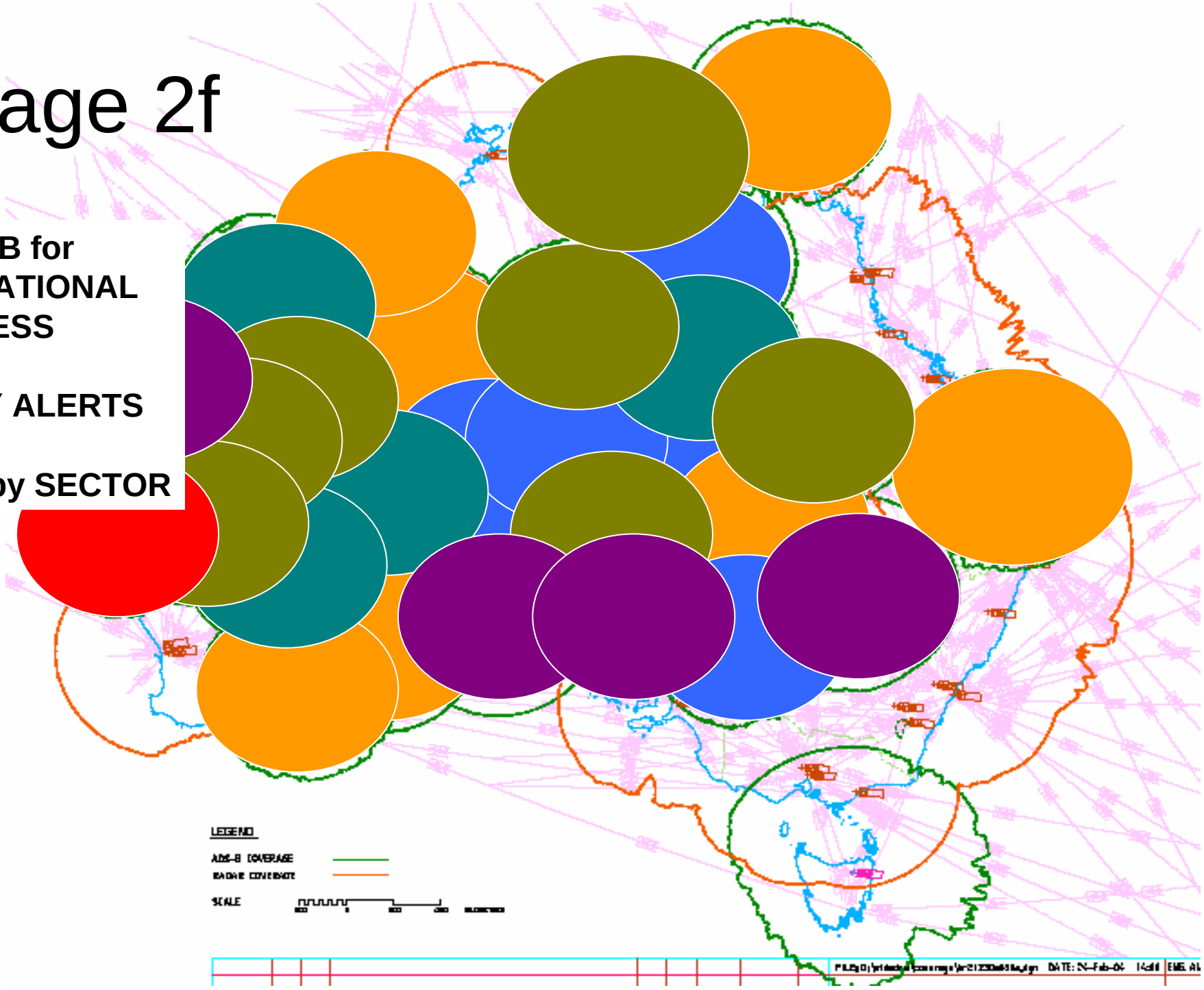


Stage 2f

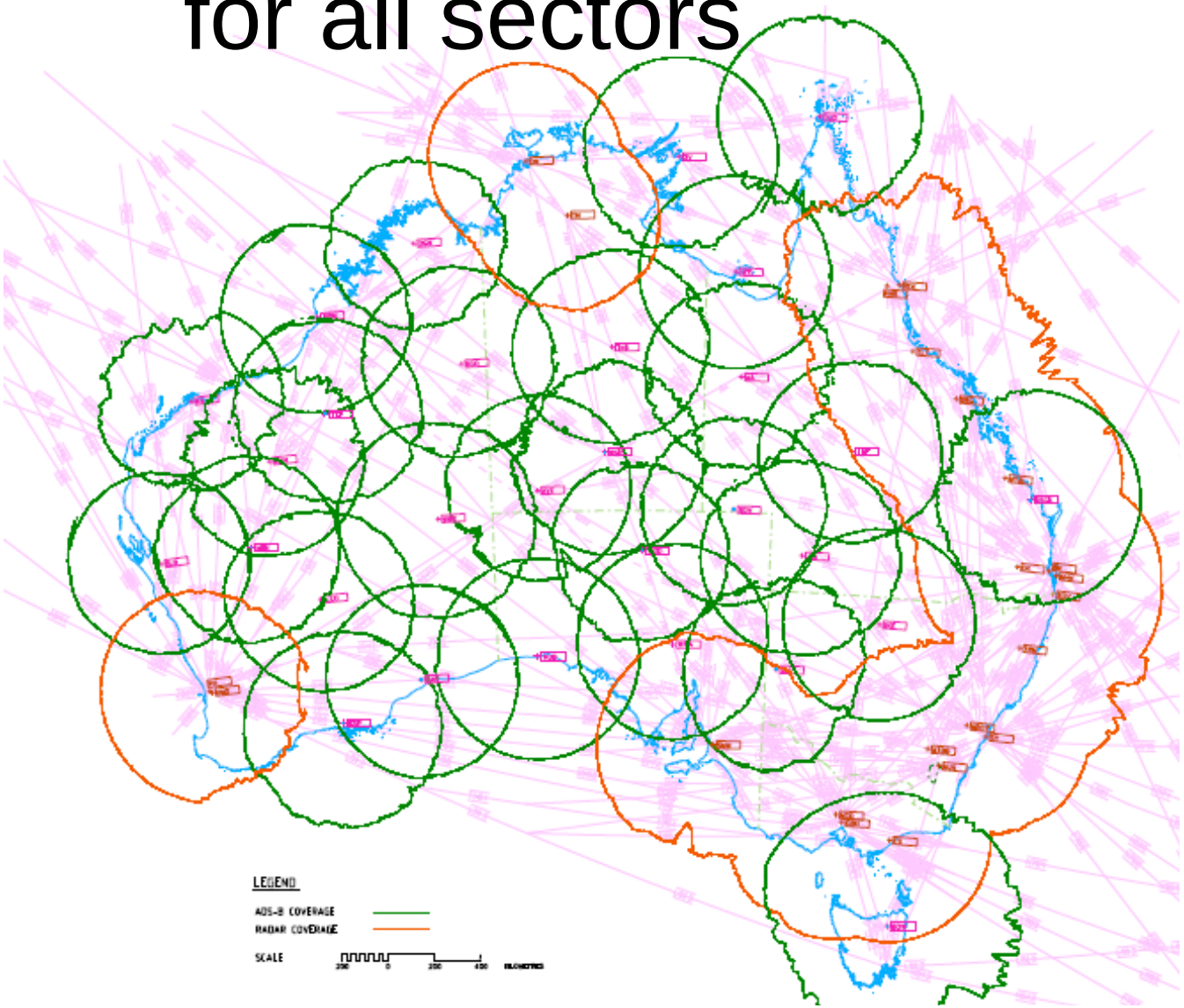
USE ADS-B for ATC SITUATIONAL AWARENESS

& SAFETY ALERTS

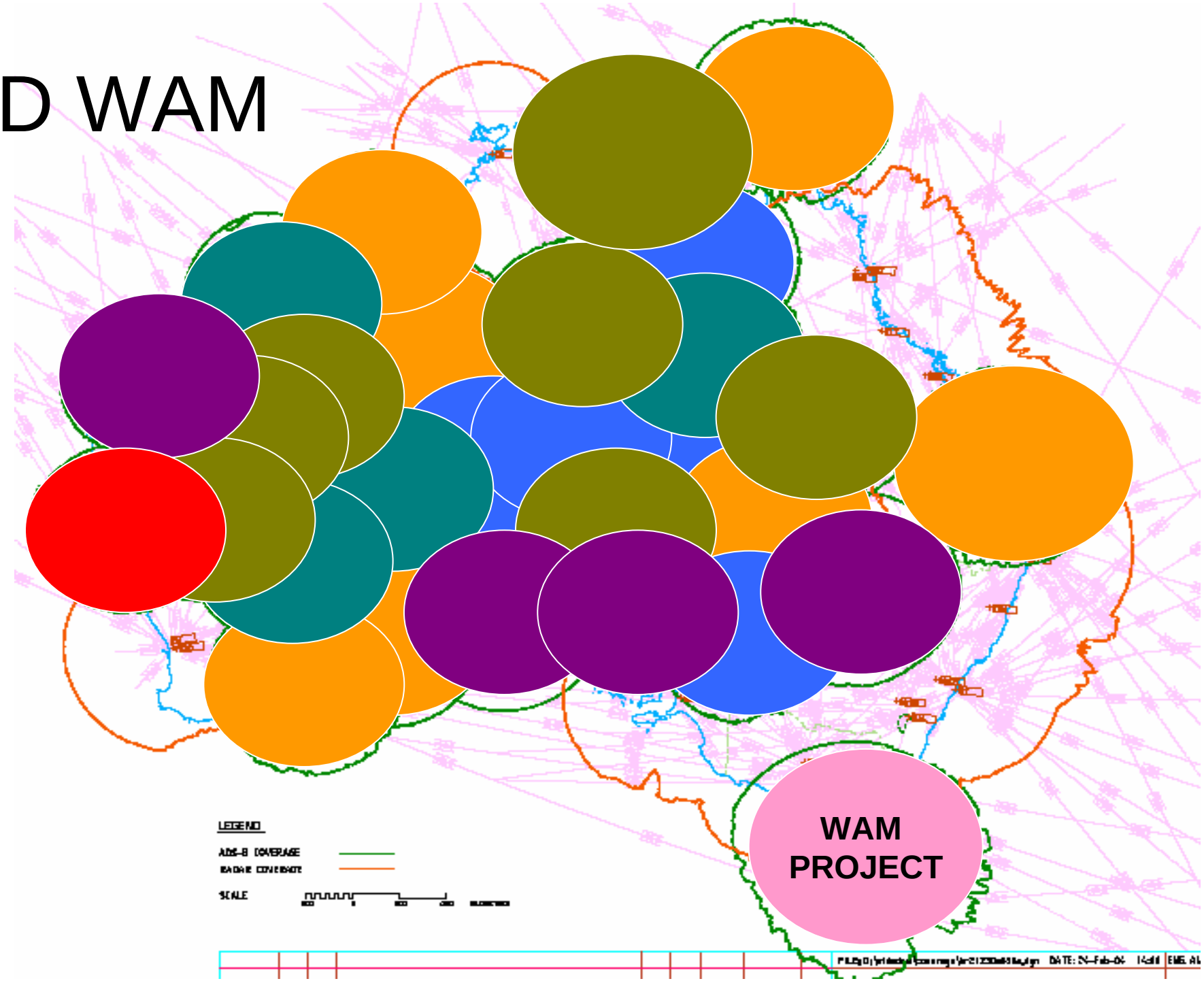
SECTOR by SECTOR



Stage 3 : ENABLE
5Nm separation standard for all sectors



ADD WAM



Introduction & Overview

- UAP
- ATLAS

ATLAS Project (previously LAP)

- Industry is considering the “ATLAS project”
  - CASA, Airlines, RAAA, AOPA, Airservices Australia etc
- A transition to new technology with significant impact
- New NAV and New SURVEILLANCE
  - Remove large number of NDB / VORs – but area nav approved navigators
  - Replace enroute radars with ADS-B – if fitment mandate agreed
  - Additional “hot spot” ADS-B ground stations
- A cross Industry funding package to equip GA with ADS-B & Nav Equipment
  - Access Economics Cross Industry Business case supports ATLAS & Funding package concept (see www.astra.aero)

“ATLAS” Expected avionics

AIR TRANSPORT	ADS-B OUT + OPTIONAL CDTI
 IFR GA	ADS-B OUT + TSO146 NAV + OPTIONAL CDTI
 VFR GA	ADS-B OUT inc TSO145 output to drive Optional PDA MOVING MAP/ TERRAIN

What is required for ATLAS to proceed?

- A mandate for “ADS-B out” in airspace served by existing radars
  - To be equivalent to SSR mandate
  - To allow removal of radar
  - To provide increased efficiency in upper airspace

INDUSTRY has asked CASA for the mandate but result will depend in part on Cross Industry Funding Package

- Avionics available at the right price

Avionics price from RFP to be issued in Sept

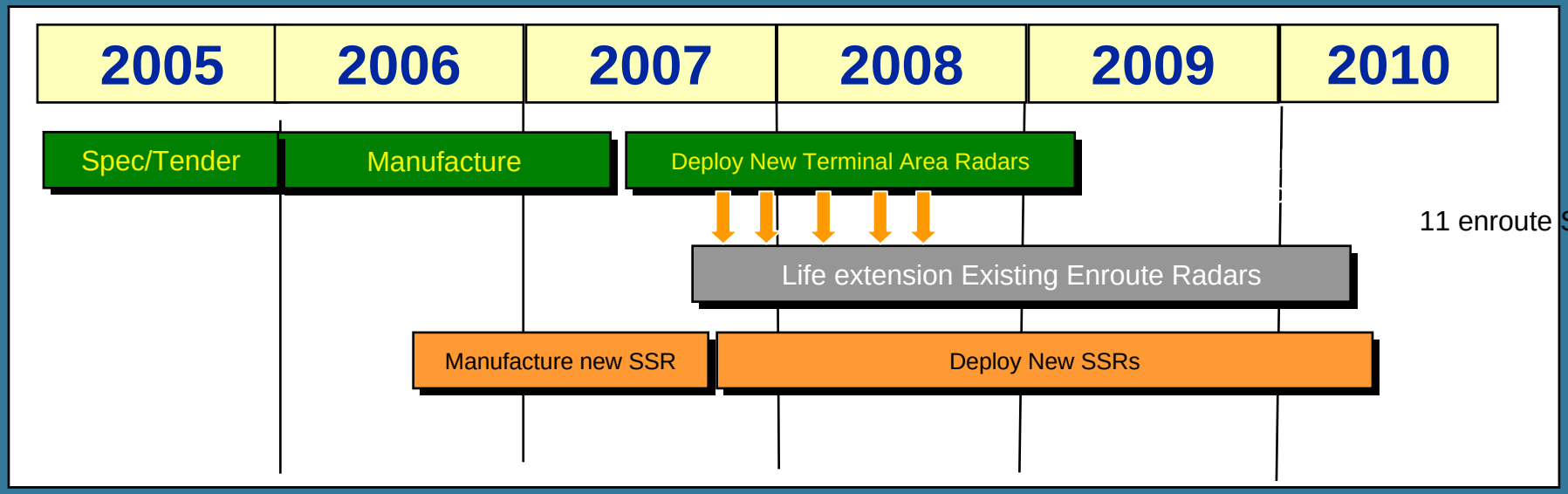
- CASA approval of TSO145/146 only means nav

Work nearing completion

- Agreement to Funding Package
  - Not possible without benefits to major stakeholders
  - Not possible without mandate for fitment
  - Not possible without Navaid removal
  - Not possible without “firm prices”

Politics, CASA, DoD, DoTaRS & Airservices Australia

WHY THE URGENCY – 2006 ?



- By 2010 enroute radars will have been turning 20 years
- Must have adequate time to replace 20 radars
- Must have adequate notice for a fitment mandate
- Delays reduce benefits

ADS mandate is being considered

- To provide same service/safety in enroute radar airspace
  - After these radars are decommissioned
  - CASA discussion paper & responses is published on WEB
- To provide opportunity for air-air surveillance
- CASA Discussion paper published on web
- CASA Responses to Discussion paper published on web
- CASA is preparing a NPRM

Conclusion

- ADS-B Technology will be adopted worldwide
  - New capabilities & add on products, efficiencies
  - Improved safety (alerts, SAR)
- ATLAS presents a unique opportunity for Australia to transition to ADS-B now
  - At low cost
  - By leveraging from non replacement of Navaids & Radars
  - Window of opportunity is open till about April 2006
- Major stakeholders are supportive
- The proposal saves the Industry money and improves safety
  - Lower costs for Airlines & travelling public
- The project is NOT yet approved

Questions ?

More details on Airservices Website

http://www.airservicesaustralia.com/pilotcentre/projects/adsb/adsb.htm

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