

ADS-B and WAM implementation Workshop ICAO/FAA



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EXPERIENCE ON INSTALLATION OF ADS-B SENSOR AT MEXICO CITY AIRPORT

México, DF. September 6th to 8th 2011



INTRODUCTION



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- Accomplish the surveillance cover over mexican air space
- Increase safety for aeronautical operations in APP areas in Mexico
- FAA and SENEAM working together for ADS-B on Gulf of Mexico Project

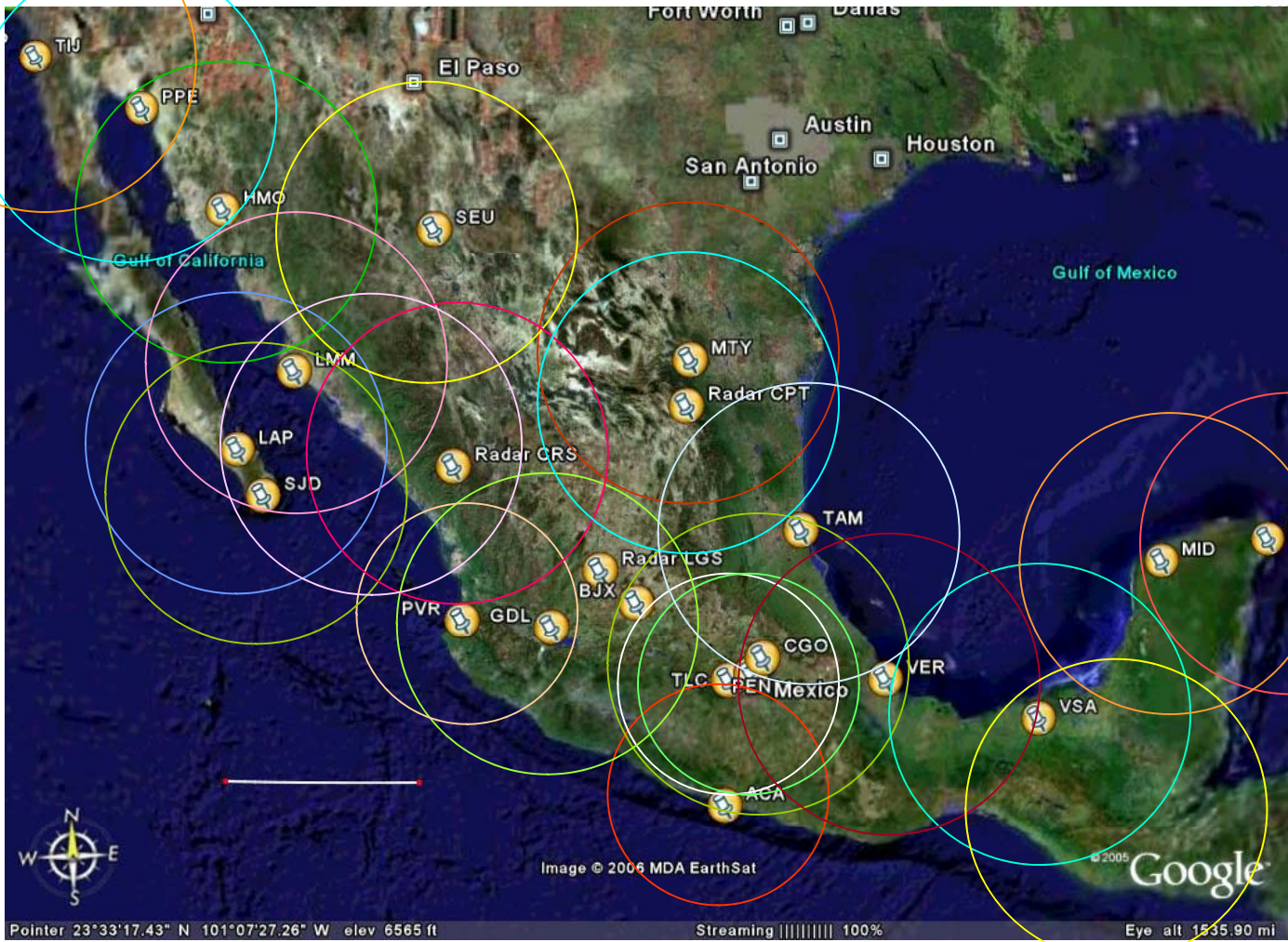
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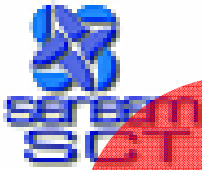
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Accomplish the surveillance cover over mexican air space



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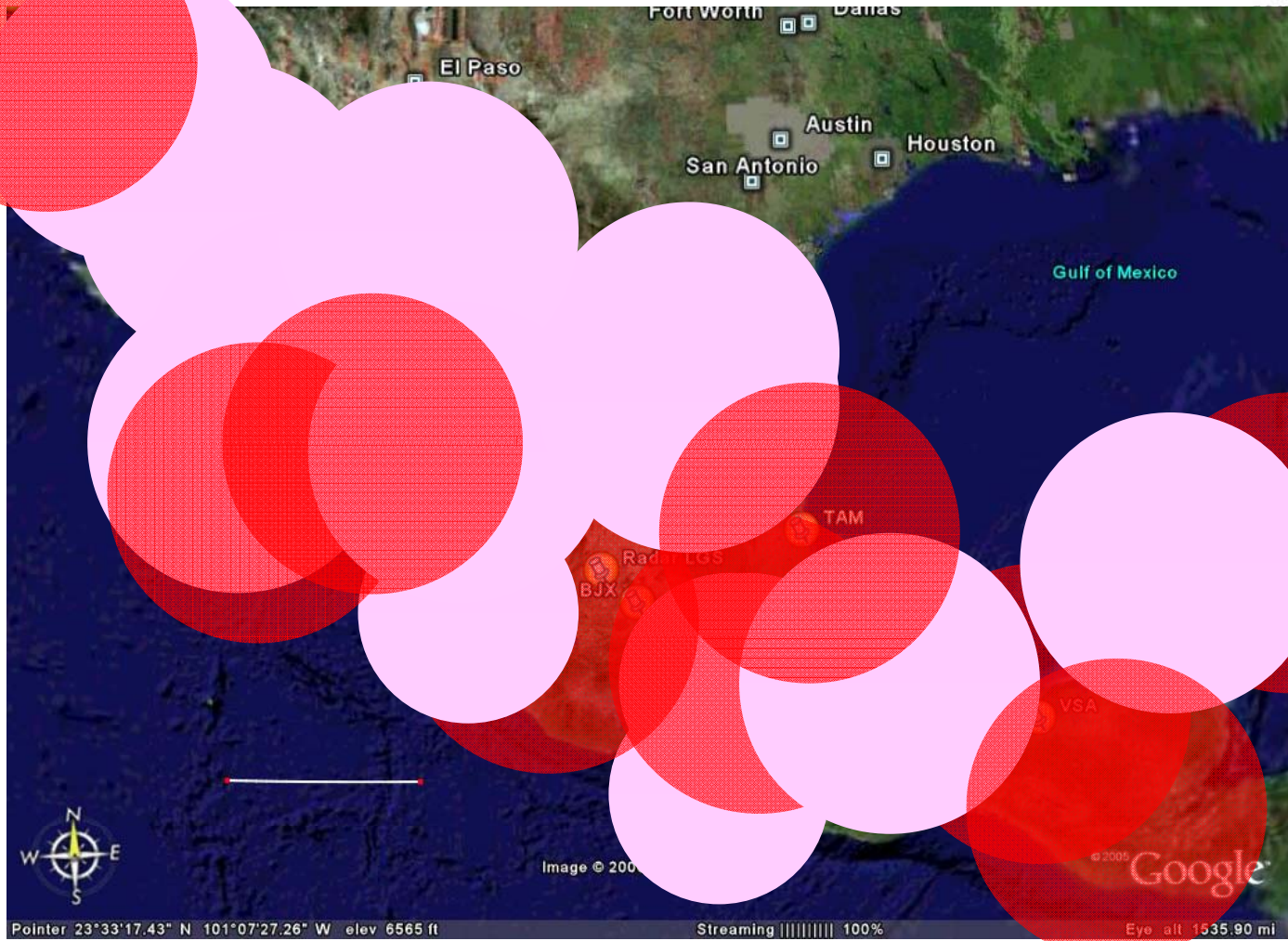


Accomplish the surveillance cover over mexican air space



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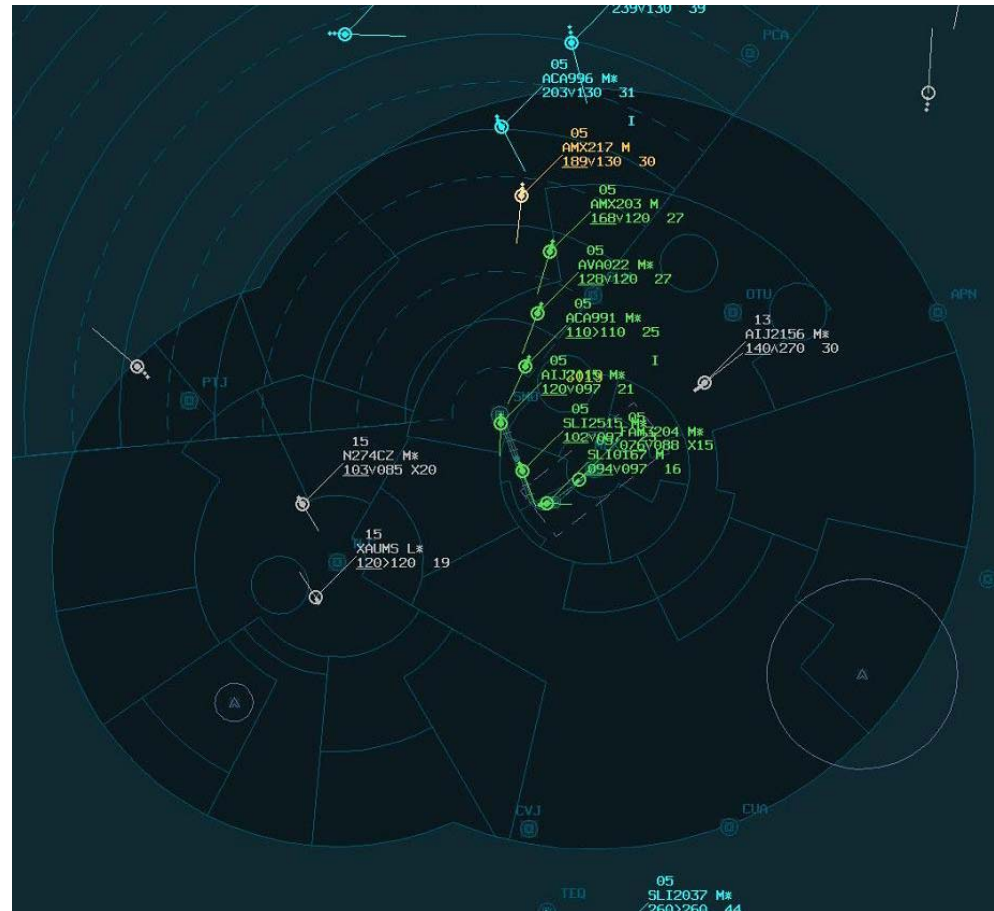


Increase safety for aeronautical operations in APP areas in Mexico



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FAA and SENEAM working together for ADS-B on Gulf of Mexico Project

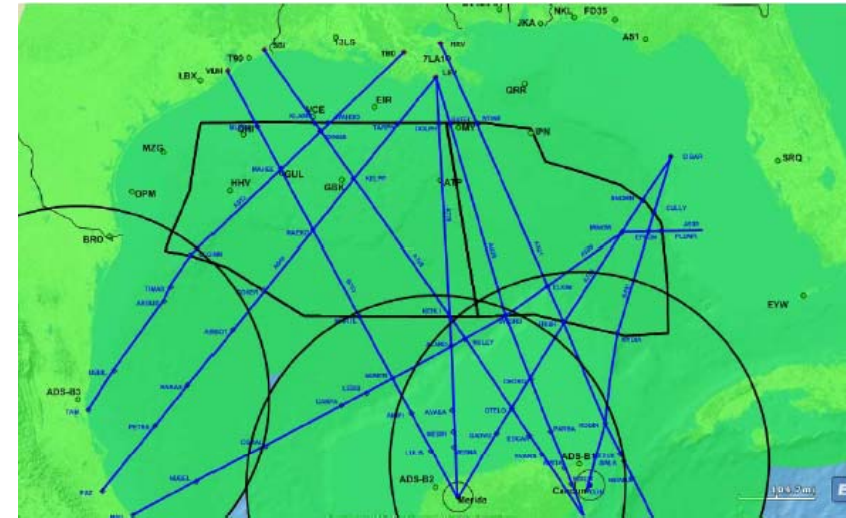
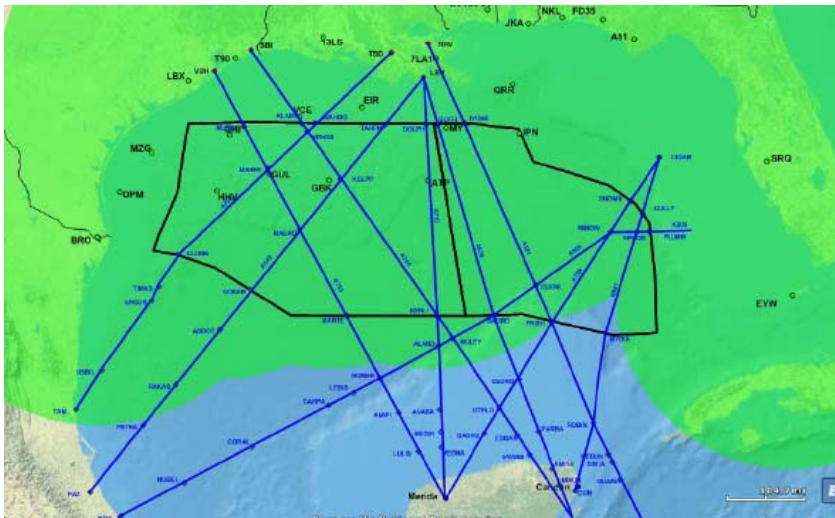


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December 2009

Expectation



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FAA and SENEAM working together for ADS-B on Gulf of Mexico Project



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December 2009

Expectation



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- The standard separation between two aircraft same bound, same Flight Level is set on the Letter of Agreement HOU – MID:
 - 10 minutes if Mach technique is set.
 - 15 minutes if No Mach technique is used.
- On the LOA between MID and HAV:
 - 40 Nautical Miles
- On the LOA between MID and CENAMER:
 - 40 Nautical Miles. On continental area.
 - 10 minutes if Mach technique is set.

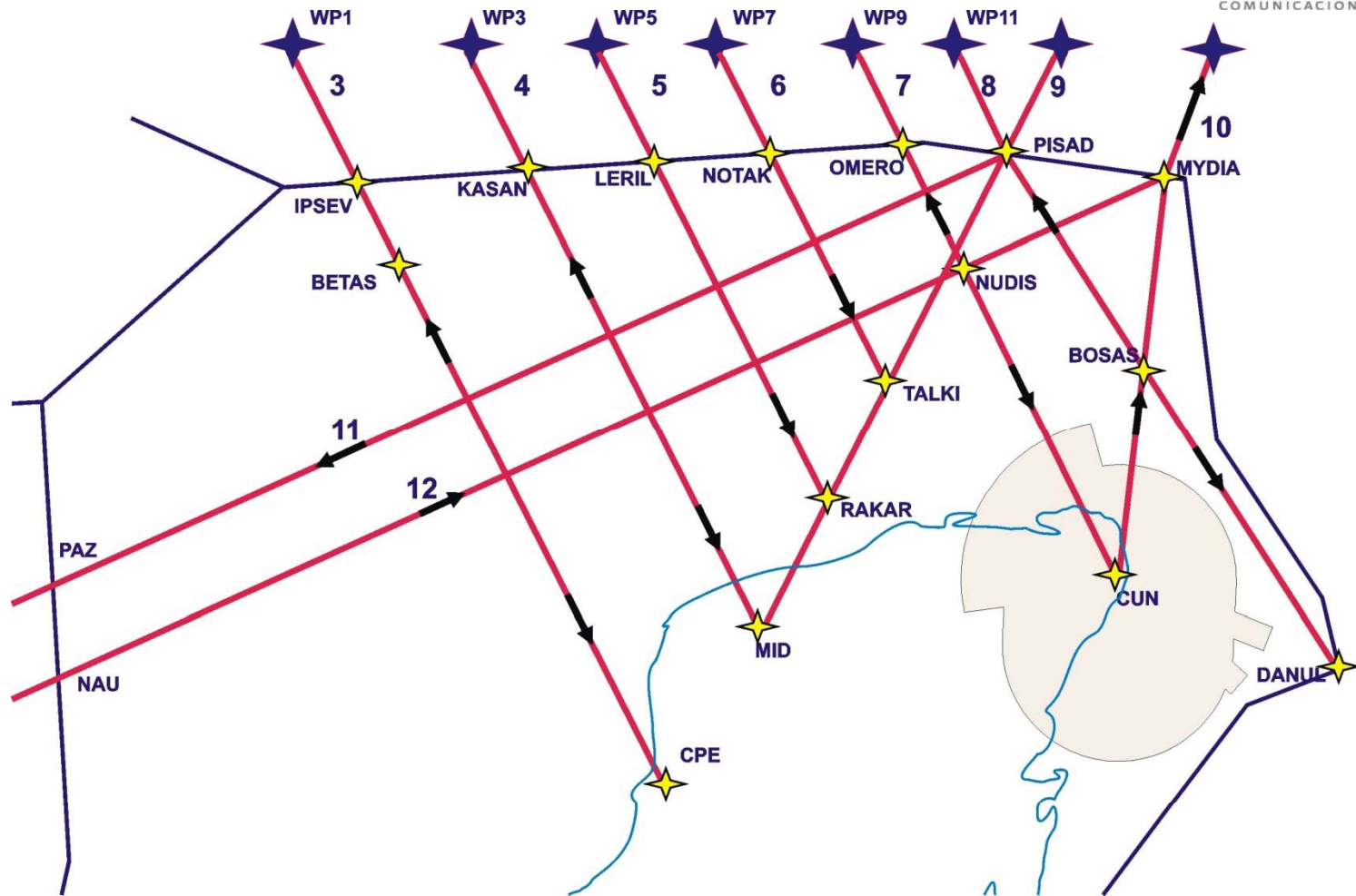
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ADS-B Test Implementation



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Test site location

Peñon radar site was selected to set an ADS-B equipment. PSR radar is located top on hill near by Mexico City International Airport “Benito Juárez”

The ADS-B equipment and its RCMS was connected to test processing platform (EUROCAT-X)



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What are we looking for test site

Peñon site is a very important surveillance point by its geographical position on the city, in fact it is a militar security area. The Valley of Mexico is perfectly covered by ADS-B antenna pattern. Mexico City International Airport is inside of this area.



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Operational importance of Peñon Radar Station

The Mexico City International Airport and its terminal area has the greater number of operations in Mexico. It is considered one of the most complex operational area. The complexity is increased by the elevation of the city, by the mountains around it and because the city is one of the most heavily populated on the world.

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ADS-B Equipment



-THALES Ground Station AS680

Signal Processing Unit (SPU)

GPS RX antenna

ADS-B RX antenna with Antenna Amplifier Unit (AAU)



-Communications

-PROXIM Radio enlace LAN TSUNAMI MP-850 CPE

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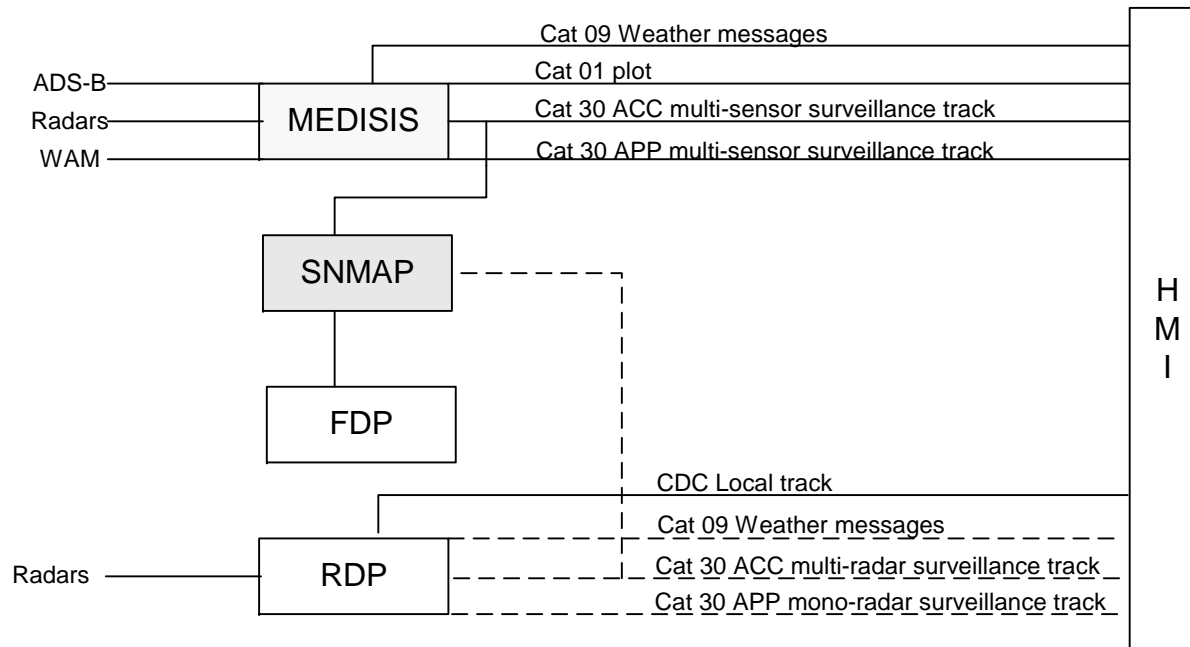


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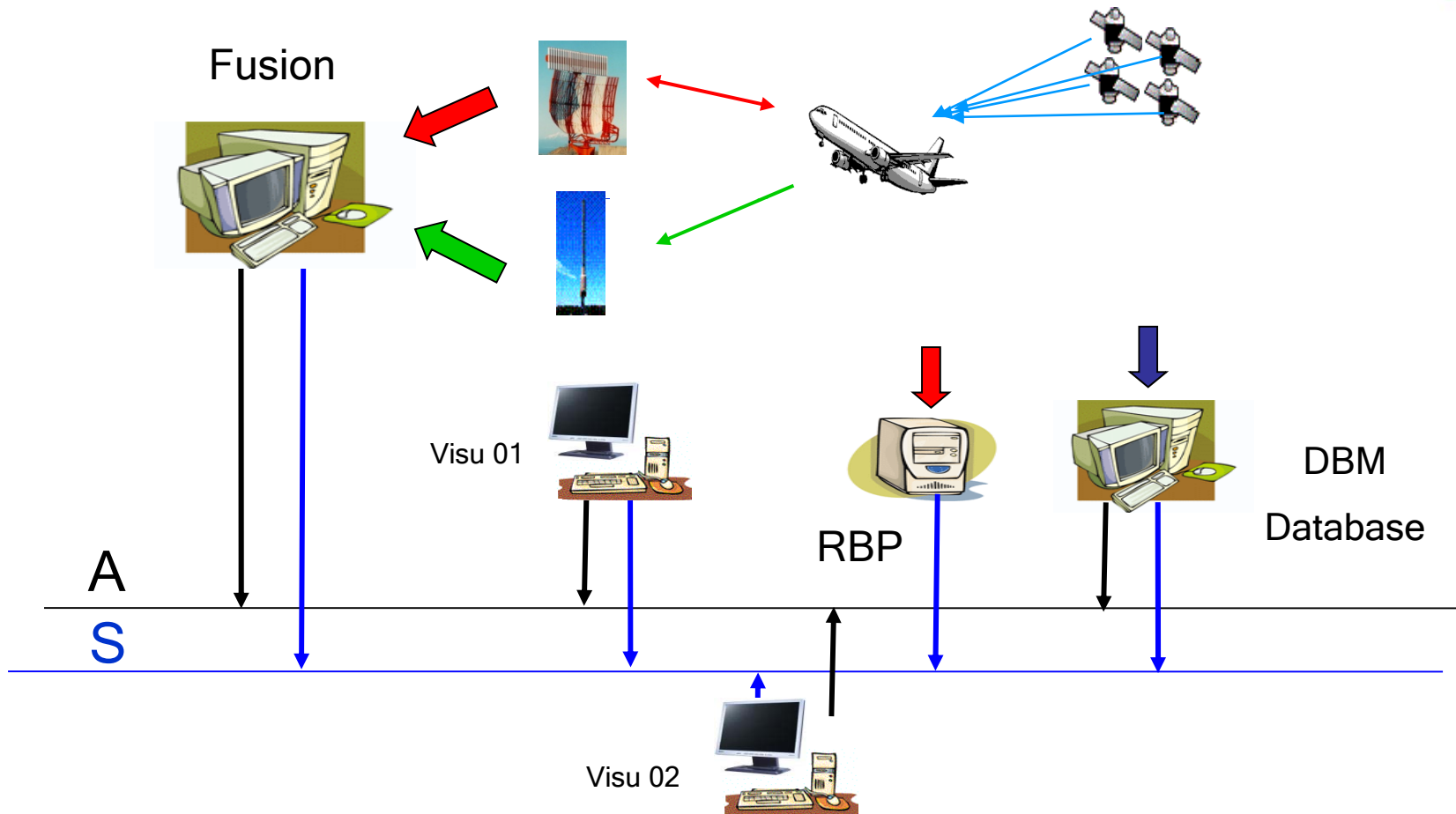


ADS-B Test Implementation on the Processing Platform



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Tests



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The ADS-B equipment was setted taking account the GPS position and the information was integrated to Special Fusion Equipment in a Processing System. This equipment mix the radar data with ADS-B data for delivering one fusioned track.

Once the system was ready, an analysis was done over data, checking ADS-B performance. The ADS-B aircraft was located over the airway perfectly, every second. The accurated was increase and it is better than SSR data.

In spite of the air traffic is dense over the terminal area, 20% of aircraft was detected with ADS-B transponder on board only.

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Conclusion

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- 20% of aircraft landing on Mexico City International Airport has ADS-B transponder on board.
- It is necessary to emit a mandatory rule about the installation of ADS-B transponder on every aircraft if they will be landing on this airport.
- Install MLAT before ADS-B ground station, could be a good solution while aircrafts are fitted with avionics appropriate (transition time).
- MLAT / ADS-B base ground could be installed in the terminal areas with a great number of operation as MEX, CUN, GDL, MTY, HMO
- ADS-B base ground could be installed through coast of Gulf of México (TAM, VER, VSA) to accomplish the surveillance cover between ACC MID and HOU.