

SBAS or GBAS System for Peru (Southamerican Region)

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ABSTRACT

This article discusses a technical (preliminary) point of view of the implementation of an augmentation system SBAS or GBAS for air navigation services or air traffic management in Peru. In that sense, this article tries to analyze the possibilities and benefits offered by GNSS for civil aviation in Peru and by extension to the region of South America (SAM), taking into account the following [1], [2], [3], [4], [5]:

- Peru (Lima) is the center of Equatorial Region (Low Latitude - Southamerica), which is hostile for the GNSS signals.
- Low air traffic in Peru (Southamerica)
- There is a continuous study of the scintillation and TEC effects.
- The scintillation can seriously affect the continuity and availability of GNSS.
- Cost - benefit analysis
- There are the new PBN (RNAV/RNP) procedure which permits flying direct routings, precise navigation capability and permits efficient operations in terrain constrained or congested airspace.

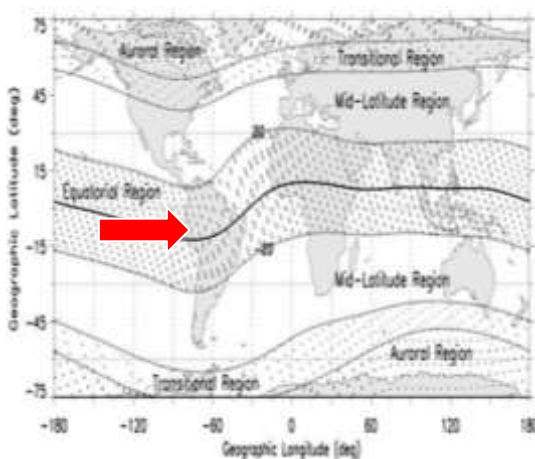


Figure 1. Geomagnetic Equator (± 20 grades), courtesy of NOAA

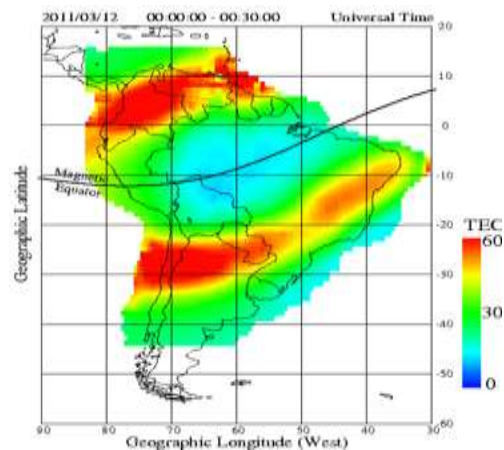


Figure 2. TEC generates delays, measurements made by LISN (Low-latitude Ionosphere Sensor Network) – Courtesy of Boston College

Acknowledgements:

Sources courtesy of: CORPAC/ICAO/BOSTON COLLEGE/FAA/DECEA/NOAA

References:

- [1]: ICAO Doc 9849 “Global Navigation Satellite System (GNSS) Manual”
- [2]: Annex 10 "International Standards and Recommended Practices in Telecommunications Network" of ICAO.
- [3]: Cesar E. Valladares, Institute for Scientific Research, Boston College “Space Weather effects and the Wide Area Augmentation System (WAAS)”, Jicamarca, August 19, 2010

[4]: Patricia Doherty, Institute for Scientific Research, Boston College Space Weather Effects on Aviation, February 11, 2010

[5]: Patricia Doherty, Institute for Scientific Research Boston College, (Special thanks to: Deane Bunce, FAA HQ), 'GNSS Augmentations for Civil Aviation" *ICTP Workshop Dec. 04, 2006*