



Ministry of Land, Infrastructure, Transport and Tourism
Civil Aviation Bureau of Japan



GBAS Status

ICAO APAC GBAS/SBAS TF2
September 2020

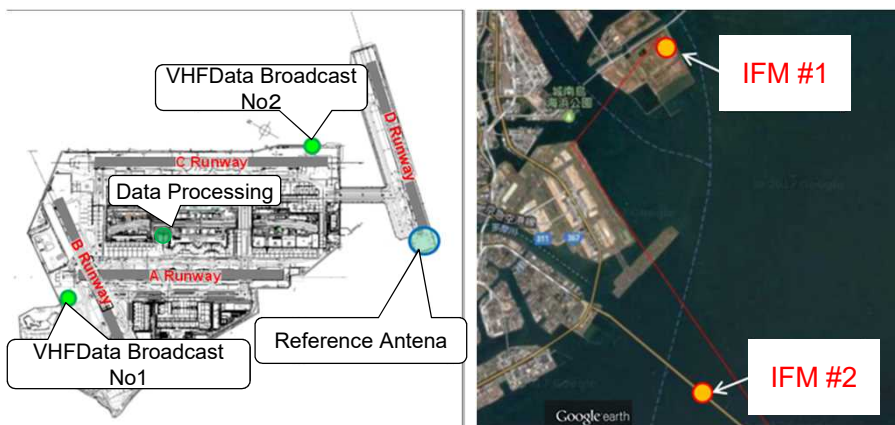
JCAB, MLIT



Ministry of Land, Infrastructure, Transport and Tourism

- ✘ JCAB decided CAT- I GBAS implementation at Tokyo international (Haneda:HND) airport.
- ✘ Haneda GBAS ground system had been installed from 2016FY to 2019FY.
- ✘ **Operational trial at HND was started in July 2020.**
- ✘ CAT- I GBAS at HND will be operated by the end of 2020FY.

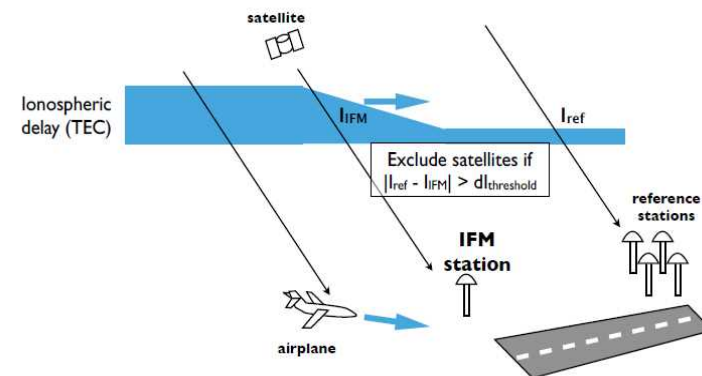
Haneda GBAS installation



Schedule

| 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|--|------|------|------|-------|-----------------|
| GBAS manufacturing/installation/adjustment | | | | Trial | CAT-1 Operation |

Haneda GBAS component features
 IFM(Ionosphere Field Monitor) mitigates position errors induced by ionosphere anomaly(the world's first).



* Additional receivers to limit the maximum potential error associated with ionospheric gradients

GBAS Equipage Status in Japan

【Aircraft Type with GBAS】

| Aircraft Manufacturer | Aircraft Type | Standard/Option | |
|-----------------------|-----------------|--------------------|------------------------------|
| | | CAT- I / II | CAT-III |
| Boeing | 737NG | Option | - |
| | 737MAX | Option | Option (under consideration) |
| | 787 | Standard | Option (under consideration) |
| | 777-X | Standard | Option |
| | 747-8 | Standard | - |
| Airbus | A320/330 Family | Option | - |
| | A350 | Option (with SBAS) | - |
| | A380 | Option | - |

【Number of Aircraft in Japan】

| Airline | Type | Number of Aircraft※ 2019/1/1 | Reference | |
|---------|--------|---------------------------------|--------------------|------------------------------|
| | | | CAT-1/ II | CAT-III |
| JAL | 737NG | 61 | Option | - |
| | 737MAX | 0 | Standard | Option (under consideration) |
| | 787 | 46 | Standard | Option (under consideration) |
| | 777-X | 0 | Standard | Option |
| | A350 | 5 | Option (With SBAS) | - |
| ANA | 737NG | 47 | Option | - |
| | 737MAX | 0 | Standard | Option (under consideration) |
| | 787 | 66 | Standard | Option (under consideration) |
| | 777-X | 0 | Standard | Option |
| | A320 | 26 | Option | - |
| | A380 | 1 | Option | - |
| NCA | 747-8 | 8 | Standard | - |

【Equipped GBAS Aircraft】



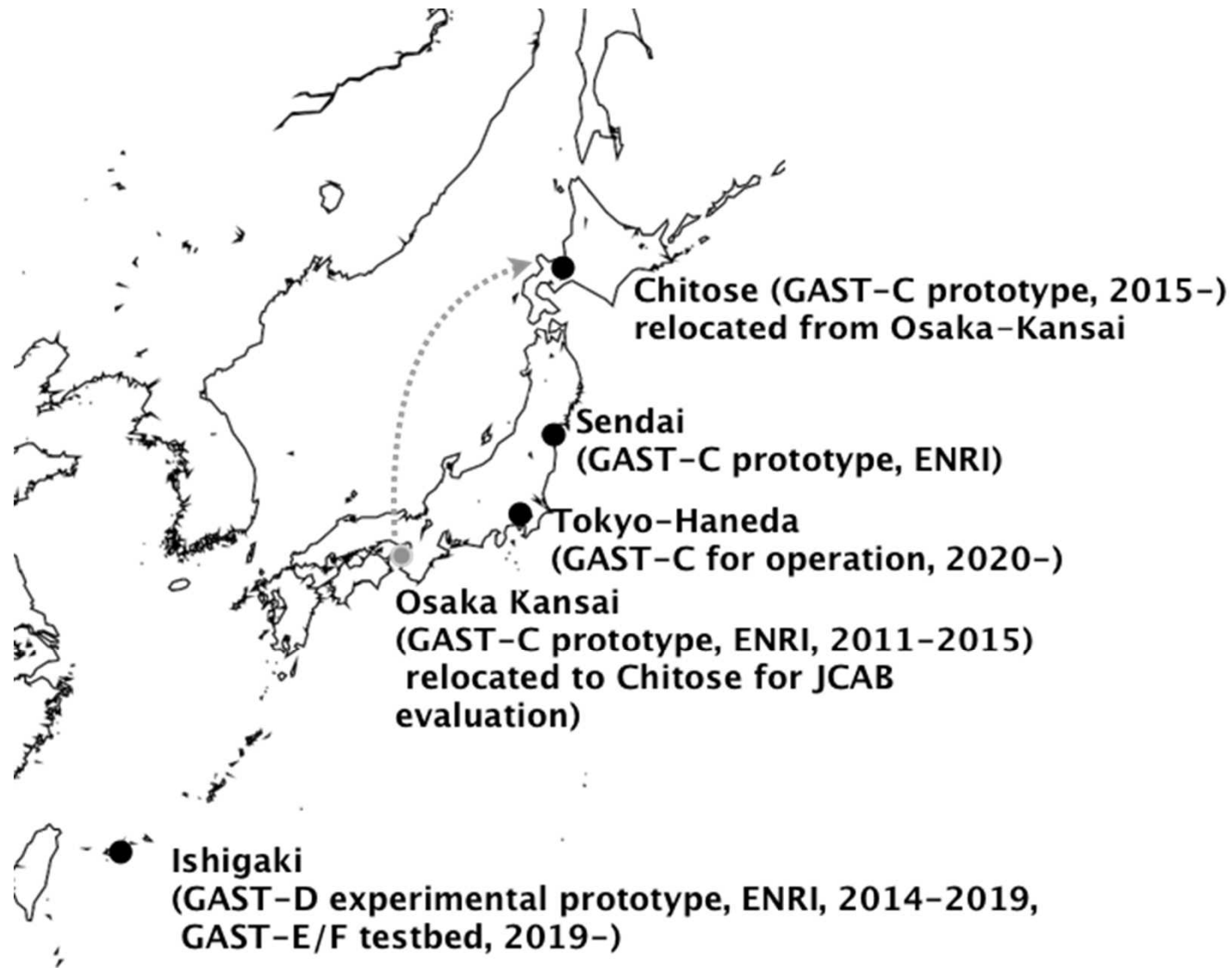
【Future GBAS Aircraft】

737MAX (JAL/ANA)



777-X (ANA)





Thank you for your attention !

