



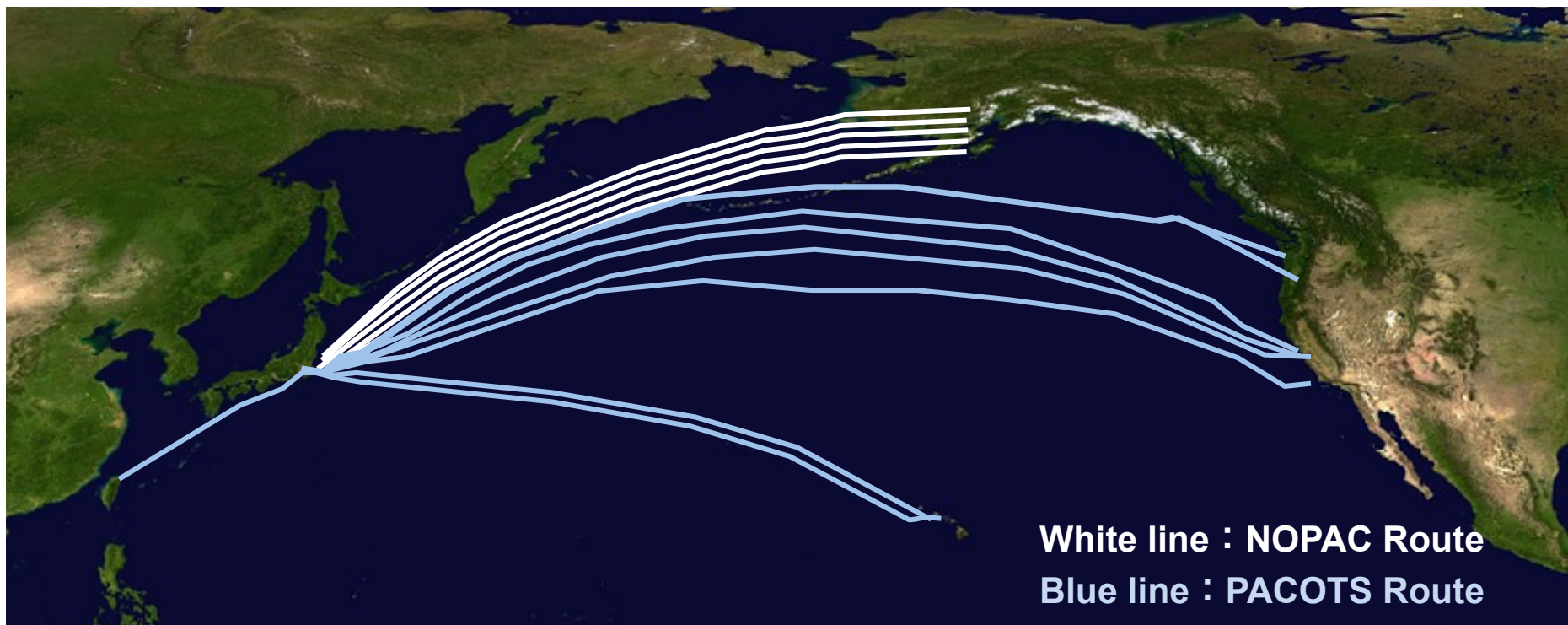
Eco activity –ANA Feed Back on the advantages of DARP Operation ANA

Japan-US Aviation Environmental Workshop
Fukutake Hall University of Tokyo
29 November, 2017

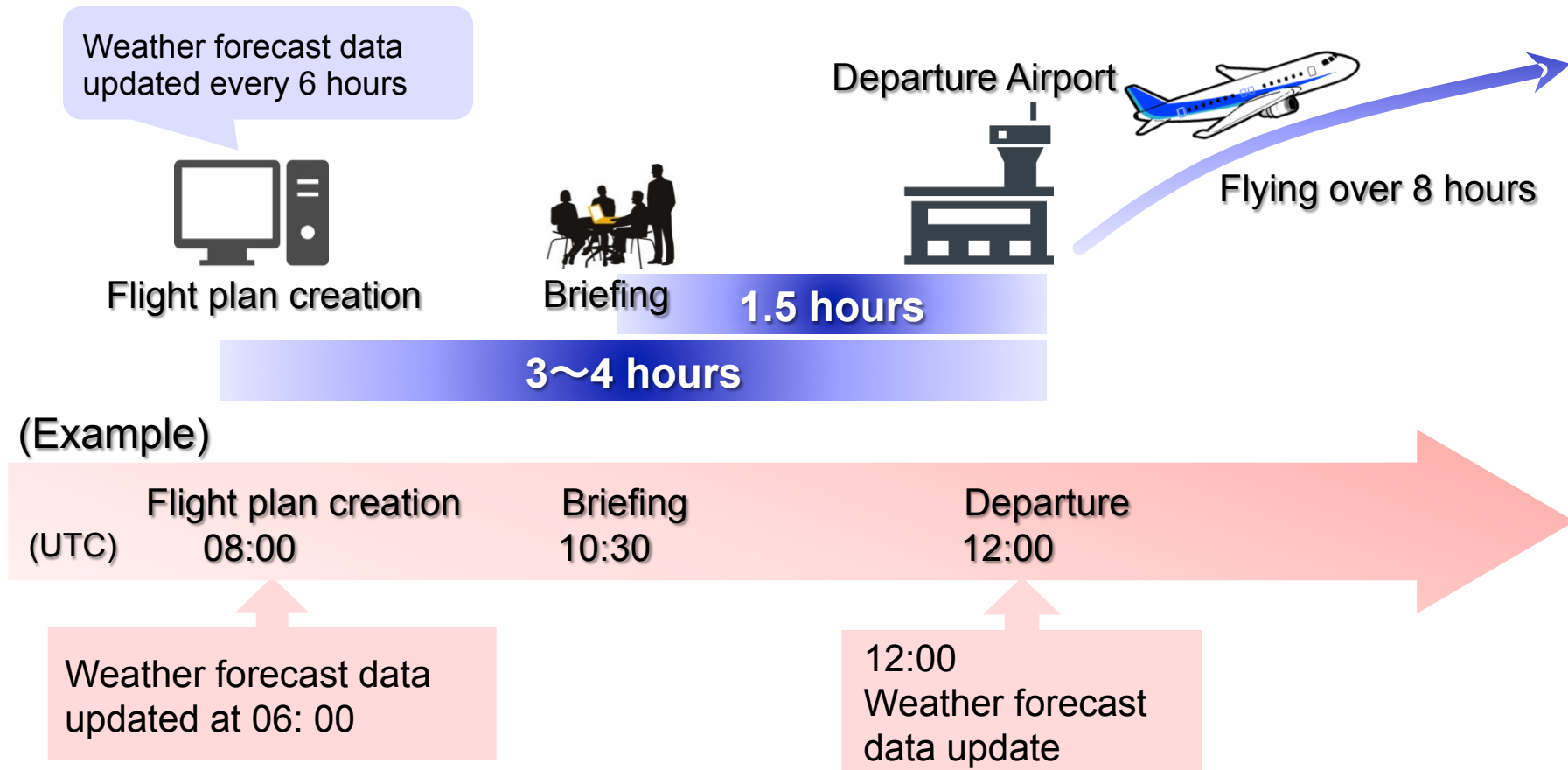
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Oceanic Flight Route

- ◆ NOPAC Route (NOPAC: North Pacific) . . . Defined as Airway
- ◆ PACOTS Route (PACOTS: Pacific Organized Track System)
 - . . . PACOTS consists of flexible track established based on a daily weather forecast by JCAB and FAA.
- ◆ UPR Route (UPR: User Preferred Route)
 - . . . UPR is a method of flight planning that allows oceanic airspace operators to choose random route based on individual airframes, flight time, weather forecast etc.

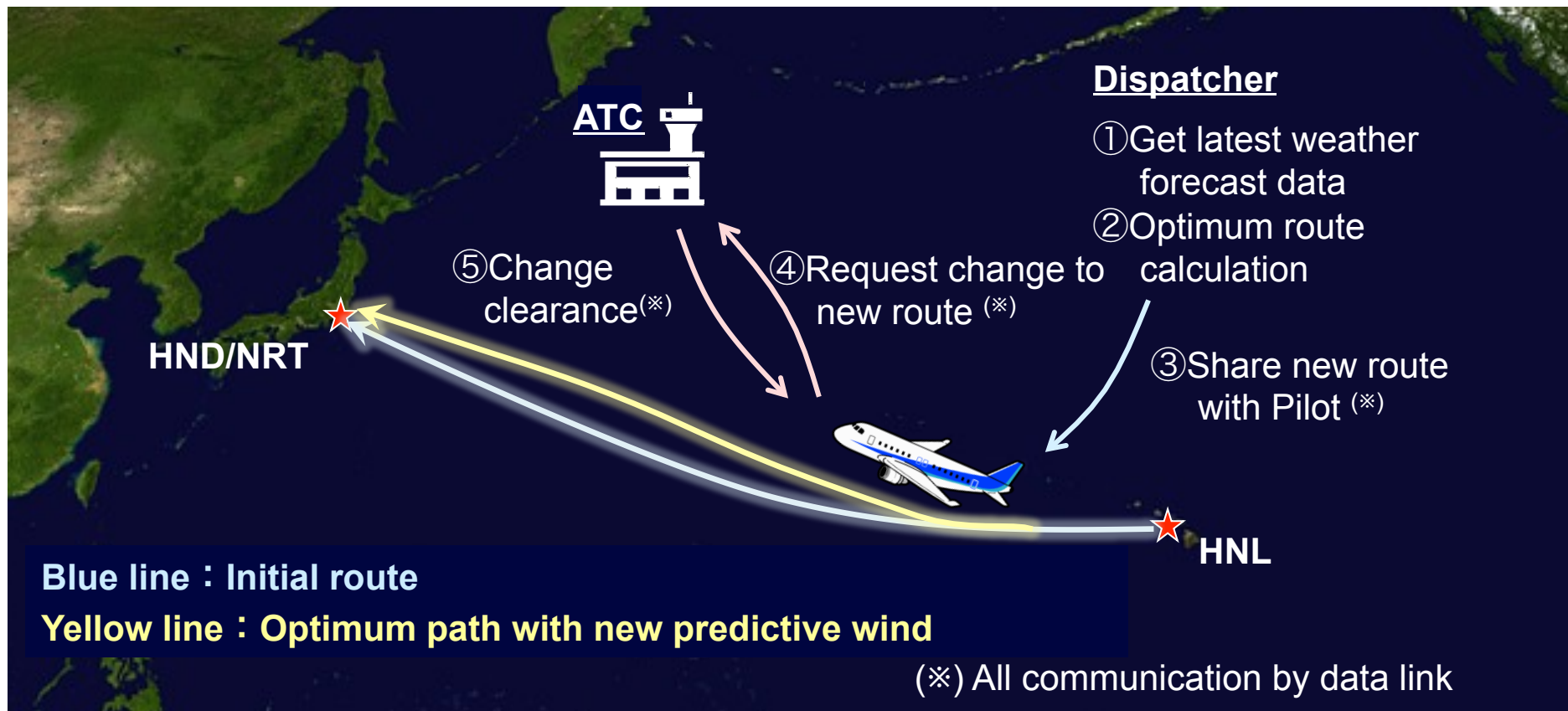


Flight plan creation procedure

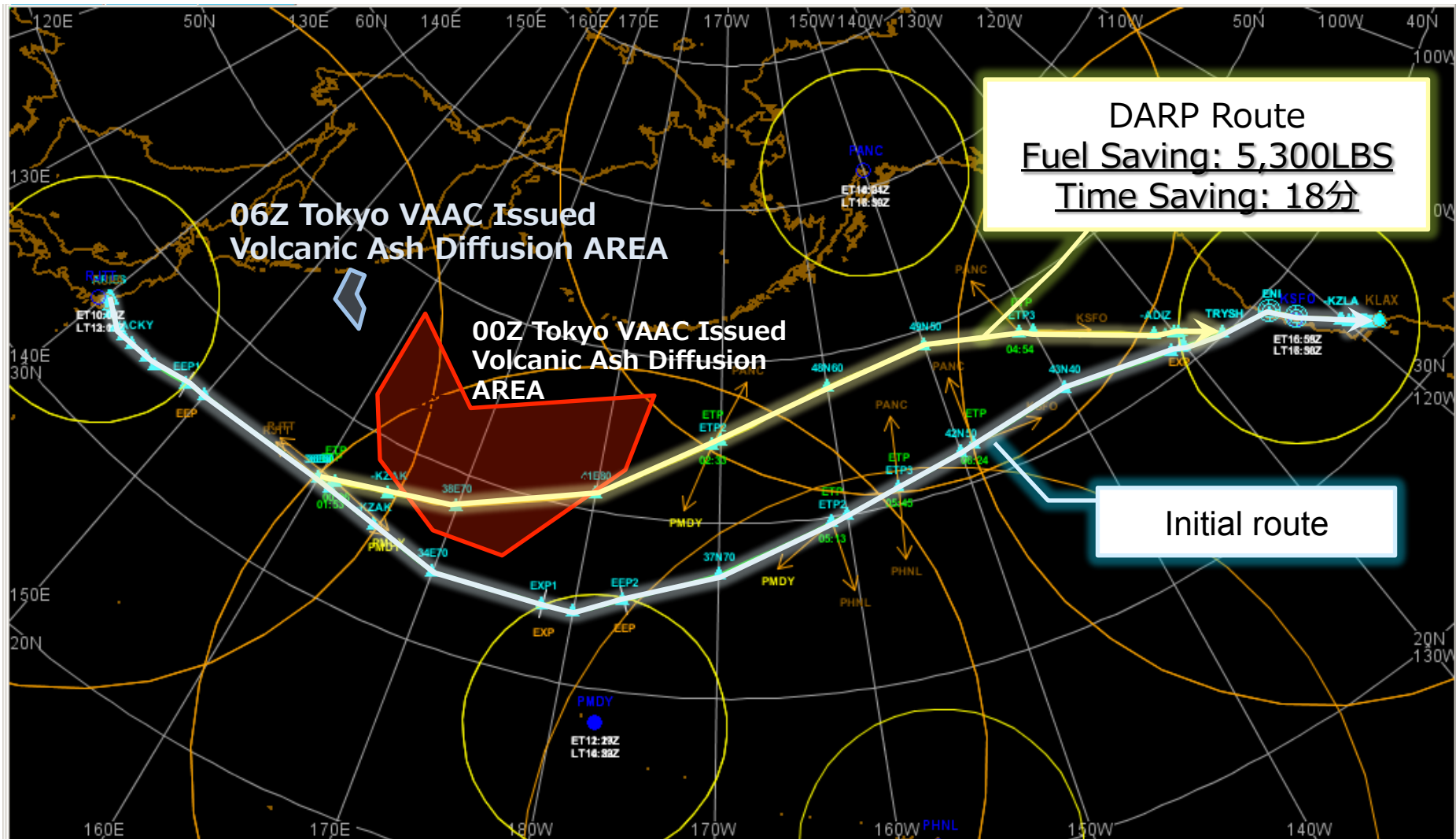


Weather forecast update : 00z,06z,12z,18z

New operating method at oceanic area (DARP)

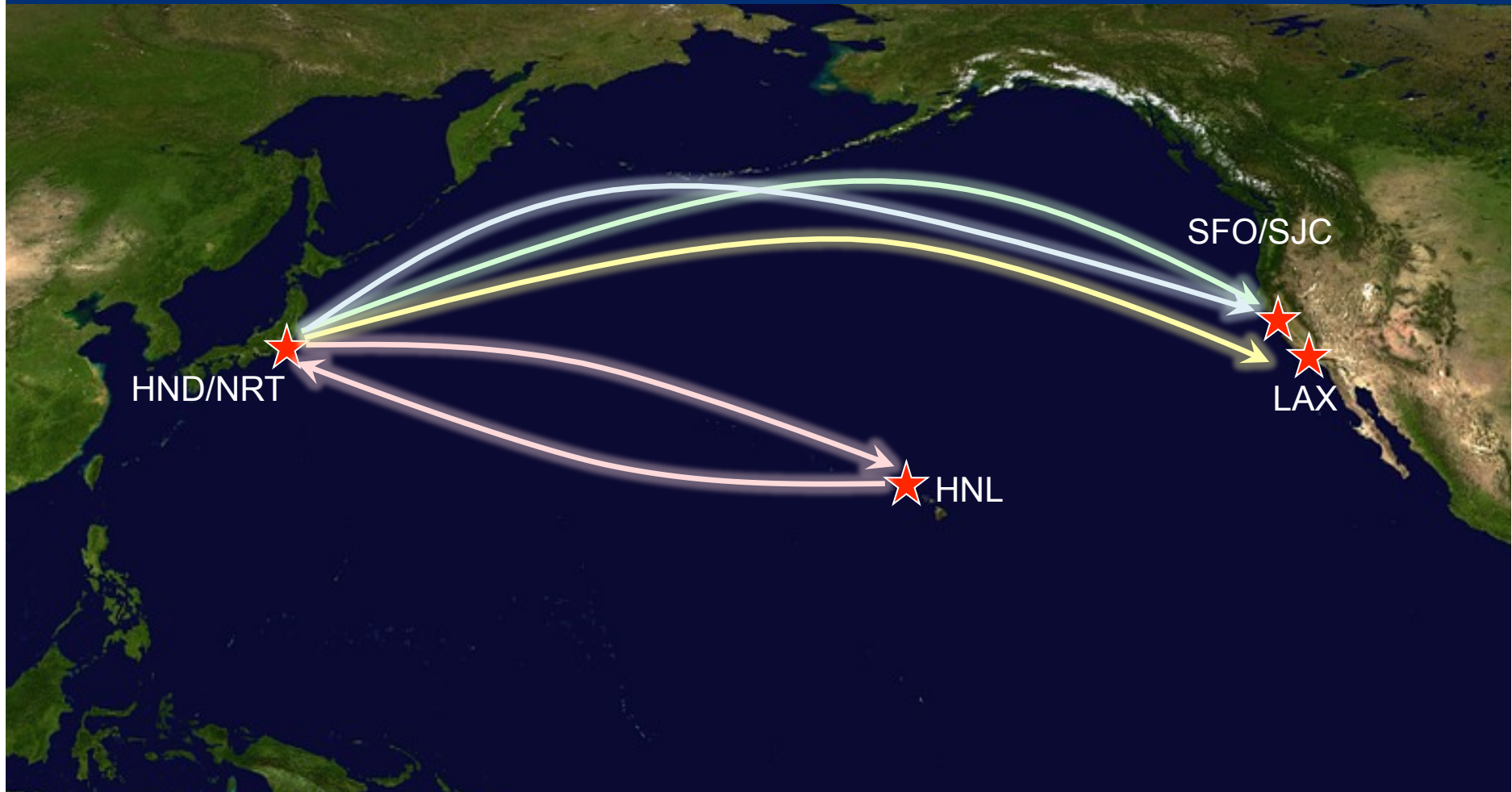


New operating method at oceanic area (DARP)



Overview of DARP operation

- Tokyo (HND/NRT) ⇔ Honolulu (HNL) From OCT 2012
- Tokyo (HND/NRT) ⇒ Los Angeles (LAX) From MAR 2014
- Tokyo (NRT) ⇒ San Francisco (SFO) From NOV 2014
- Tokyo (NRT) ⇒ San Jose (SJC) From JUN 2015



Overview of DARP operation

Actual result

The results of the target flight of DARP from October 1, 2012 to August 31, 2017 are as follows.

Target number of flights with DARP available route: **12,422 flights**

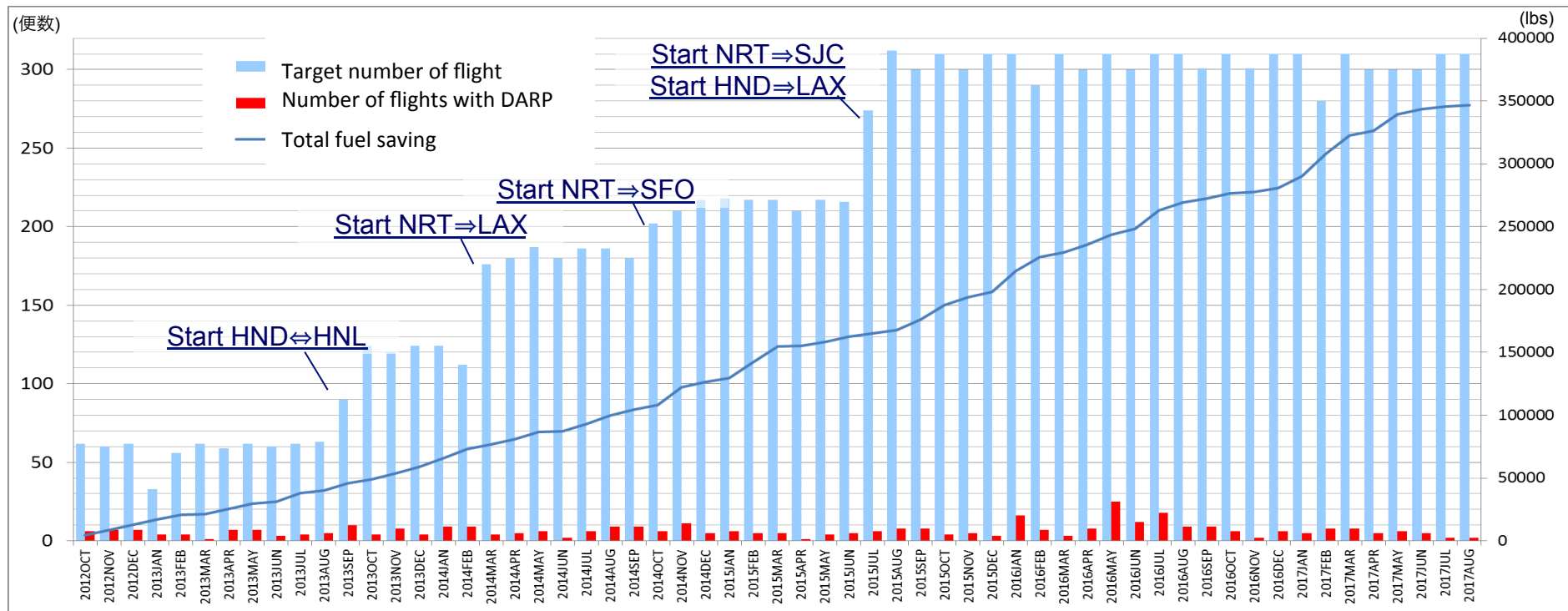
The number of flights applied DARP: **384 flights (3.1%)**

Total Fuel Saving: **376,500LBS**

Total CO₂ emission reducing: **420 t-CO₂**

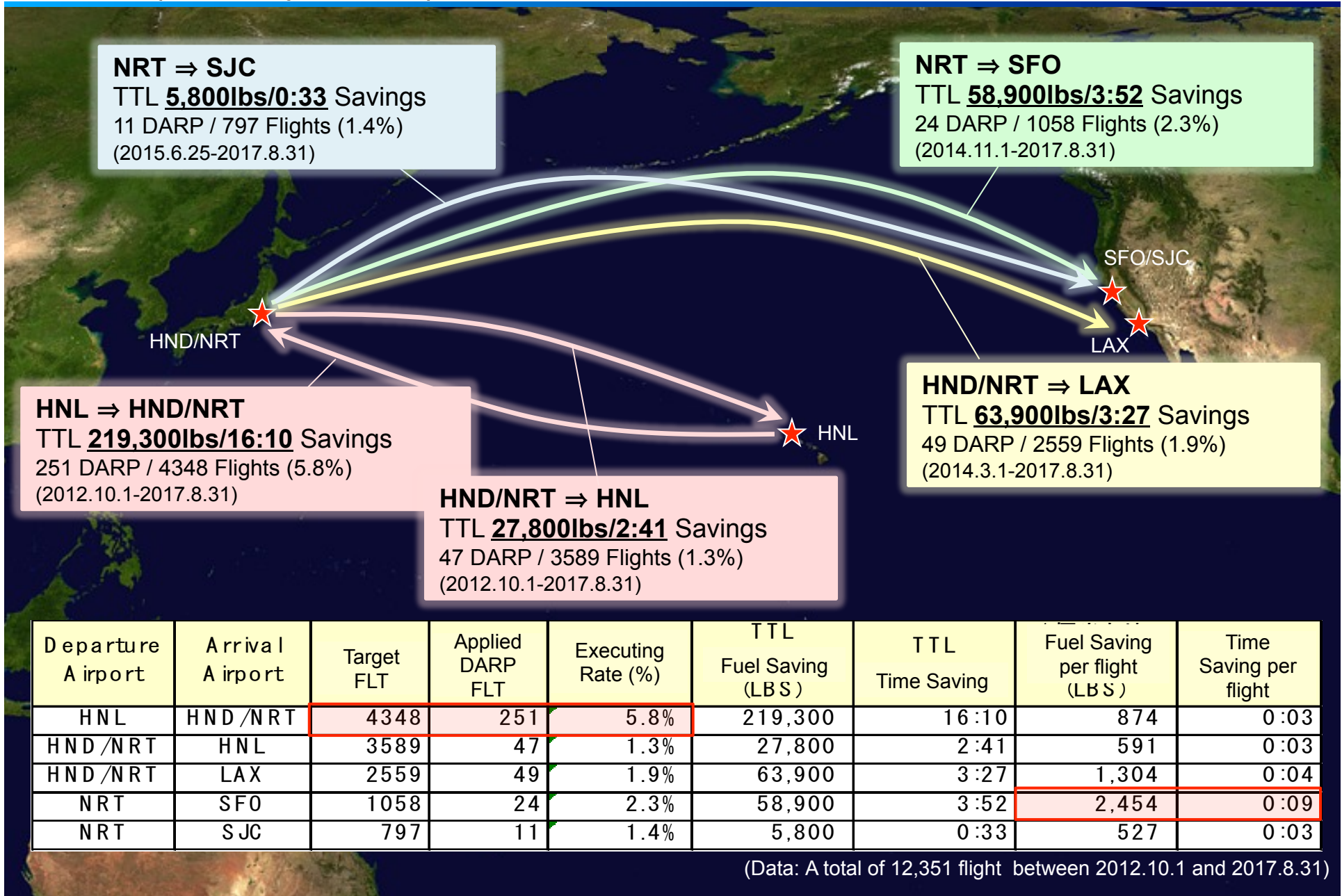
Total Time Saving: **26:50**

Transitive graph of target flights, execution flights and cumulative fuel saving



(Data: A total of 12,422 flight between 2012.10.1 and 2017.8.31)

Result (Data by Route)

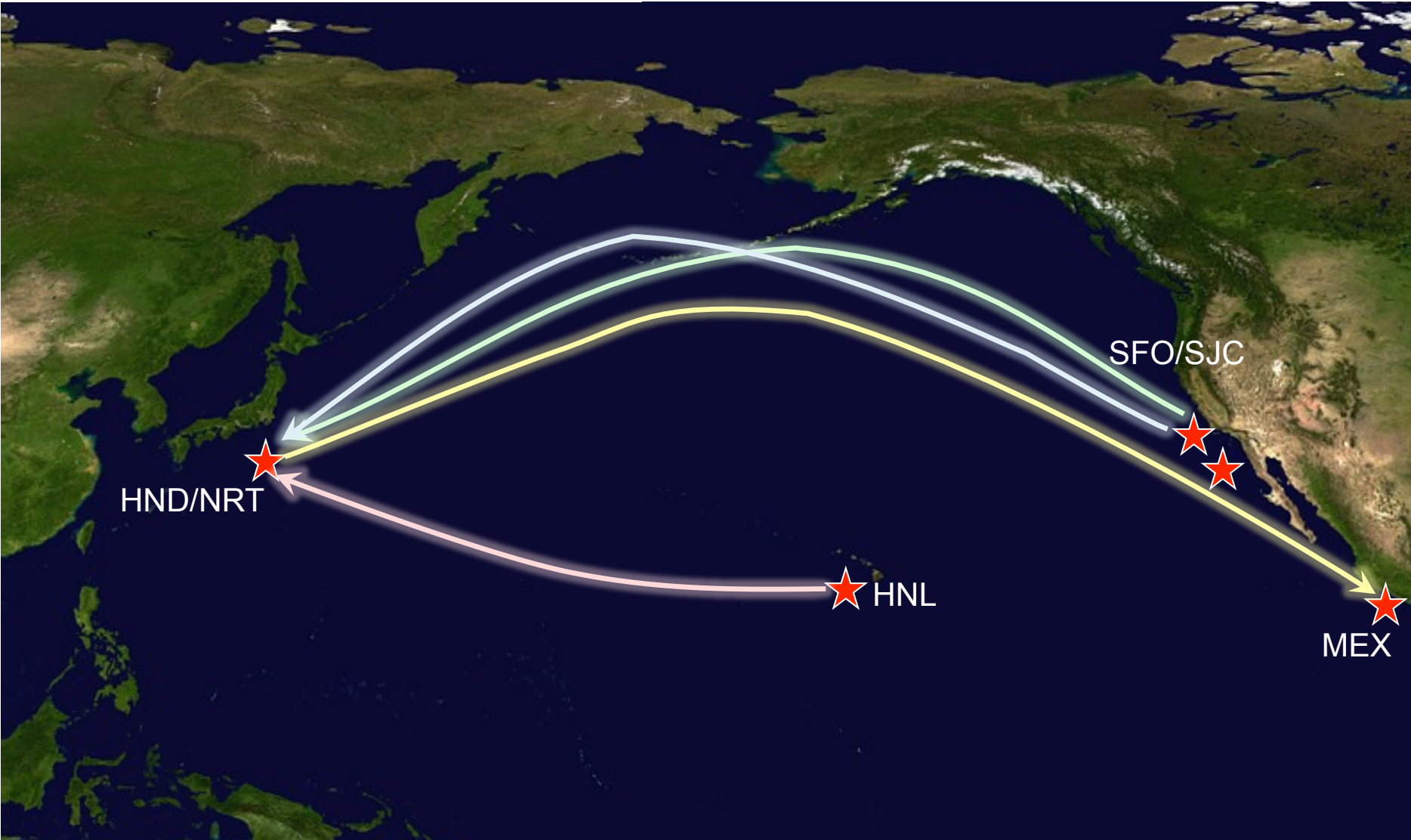


Departure Airport	Arrival Airport	Target FLT	Applied DARP FLT	Executing Rate (%)	TTL Fuel Saving (LBS)	TTL Time Saving	Fuel Saving per flight (LBS)	Time Saving per flight
HNL	HND/NRT	4348	251	5.8%	219,300	16:10	874	0:03
HND/NRT	HNL	3589	47	1.3%	27,800	2:41	591	0:03
HND/NRT	LAX	2559	49	1.9%	63,900	3:27	1,304	0:04
NRT	SFO	1058	24	2.3%	58,900	3:52	2,454	0:09
NRT	SJC	797	11	1.4%	5,800	0:33	527	0:03

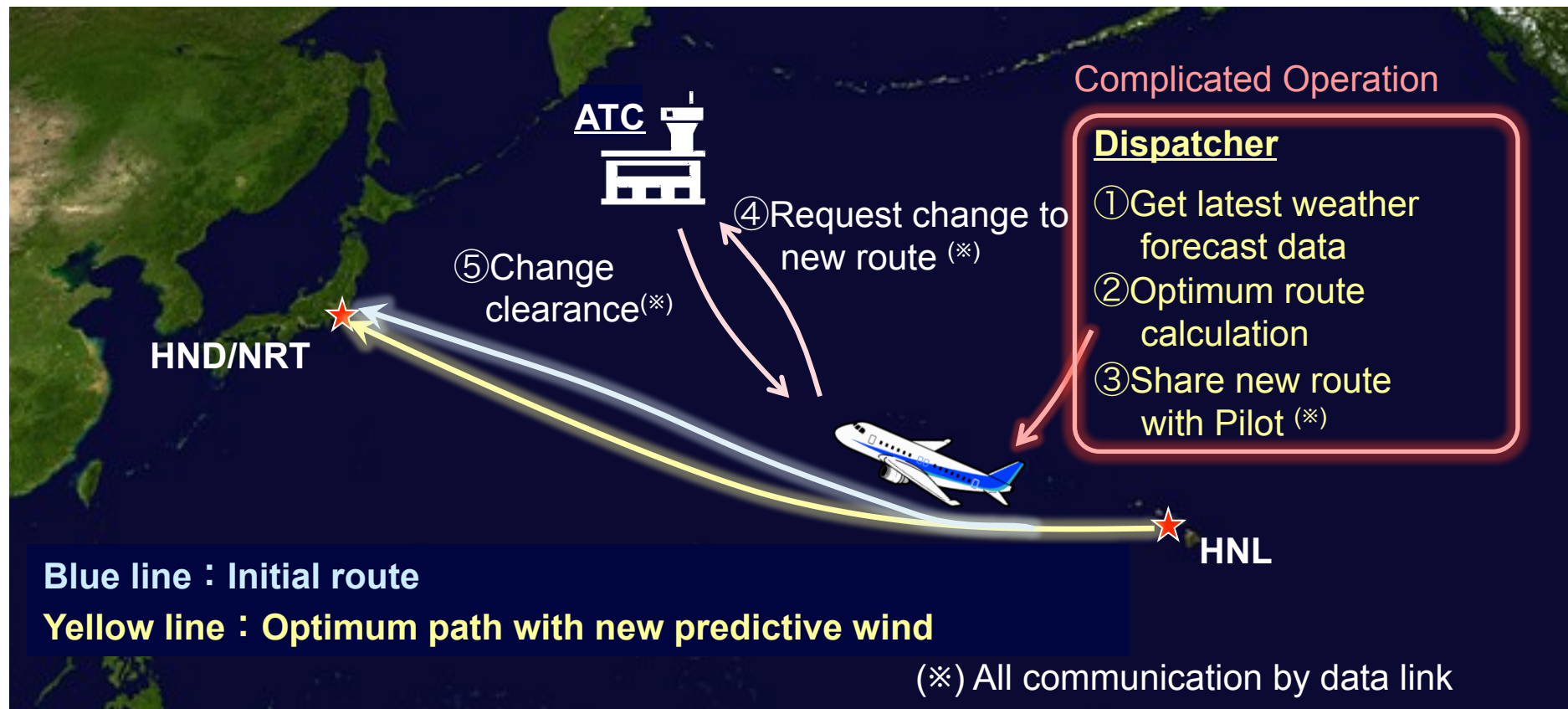
(Data: A total of 12,351 flight between 2012.10.1 and 2017.8.31)

Future prospects

Future



To raise DARP implementation rate





Questions?

Thank you for your kind attention

B727-200



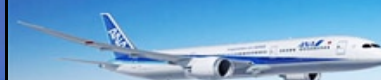
L-1011



B767-300



B787-9



A380



F-27



YS-11A



B747SR-100



B777-200



A380

