Plans for T-PARC/Typhoon Hunter 2008 in Japan

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Thousands of families have been evacuated from their homes in over a dozen coastal districts of Bangladesh as a severe cyclone Sidr heads in from the Bay of Bengal, officials said on 15 November, 2007.
As of 26 November, the Government of Bangladesh (GoB) official reports indicated that more than 7 million people were affected by Cyclone Sidr, with a death toll of 3,243 people, with a further 880 missing and 34,708 injured. (http://www.adrc.or.jp/)

THORPEX

Objectives of TH2008

- Targeted Observation for Typhoon
- Impact of Targeted Observation to Forecast
- Typhoon Track and Typhoon Structure Change

Goals of TH2008

- To have longer leading time with better track forecast
- To have better quantitative forecasts of severe wind/rainfall events

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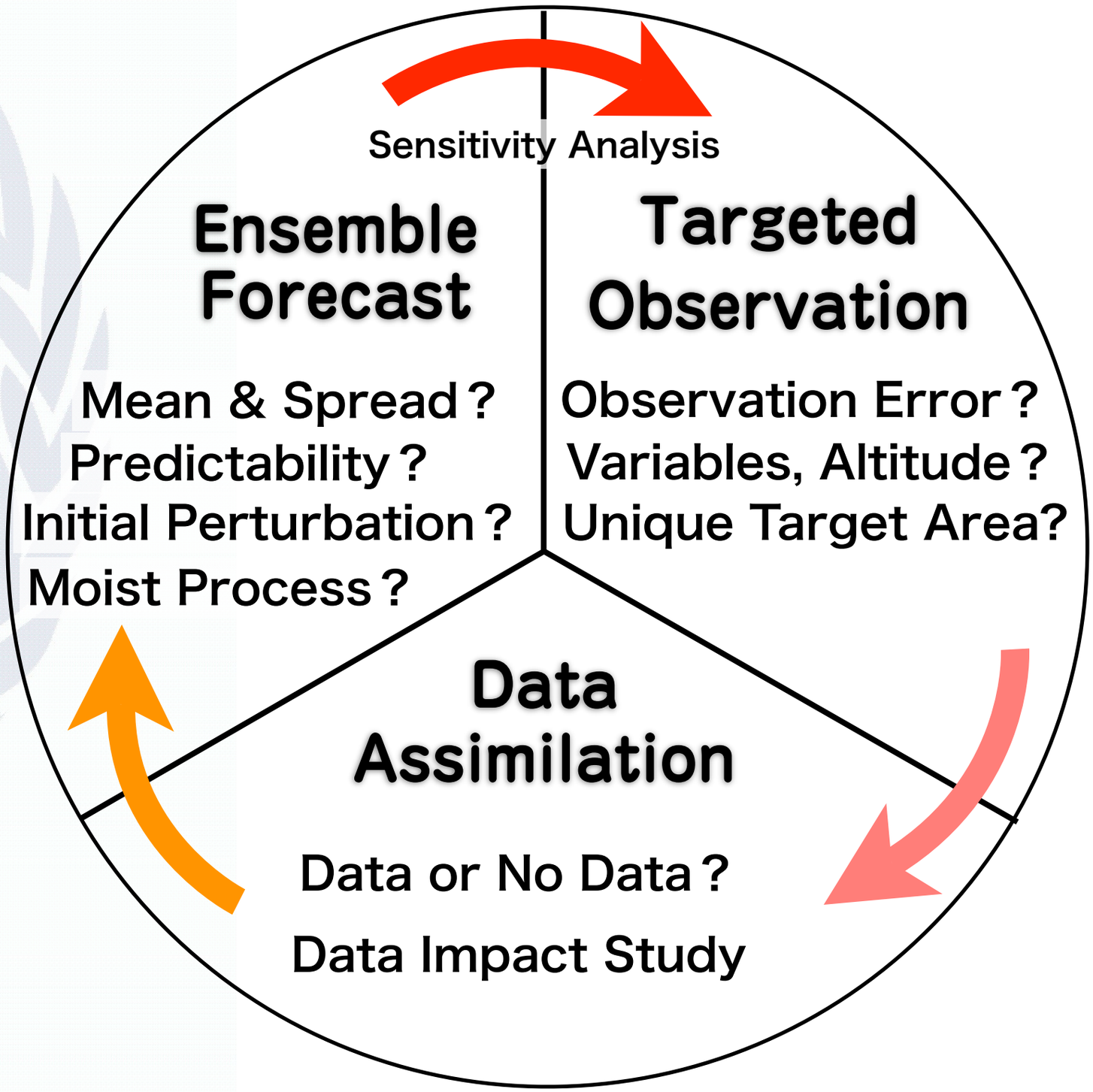
Interactive Forecast system



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Japanese Contribution for T-PARC

- Observation
  - **Typhoon Targeting** by Manned-Aircraft to deploy Dropsondes
  - **Research Vessels** over the East China Sea for Upper Sounding
  - **Enhanced Upper Sounding Obs.** in Okinawa, Palau
  - **Radar Obs.** in Palau
  - Enhanced Wind Computation from **MTSAT Rapid-Scan** Images
  - **Early Dvorak Analysis** for tropical cyclogenesis study

- Numerical Prediction
  - Computation of Sensitive Area for Typhoon Targeting
  - Impact Experiment of w/wo Observations in Sensitive Area
  - Provision of Typhoon Ensemble Products
  - Quantitative Prediction of Rain/Wind by Downscaling

- Delivery of Information
  - Preparation of JMA Web-Page for T-PARC Scientists
    - to support Typhoon Targeting
    - Images, Text and Digital Data

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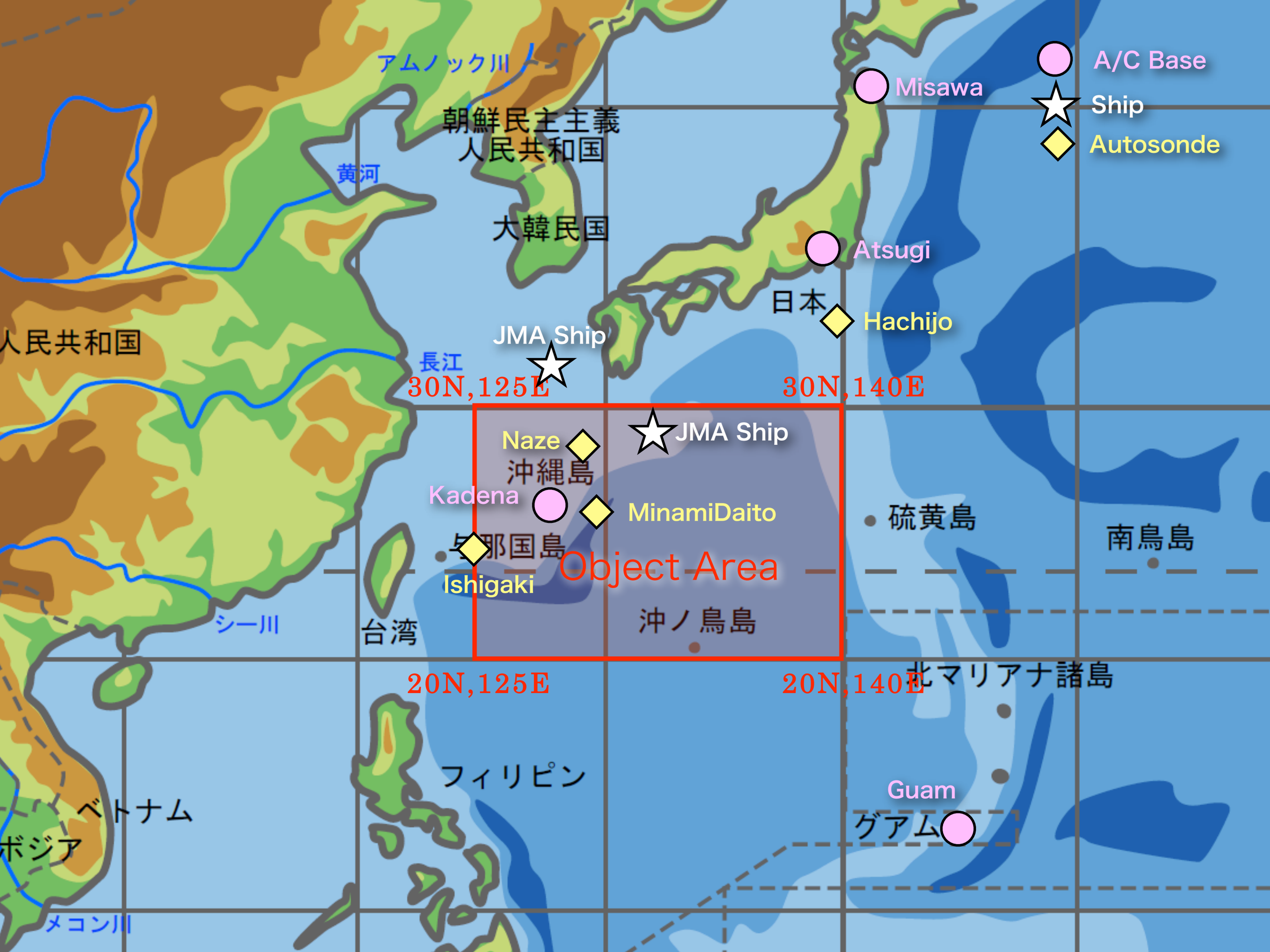
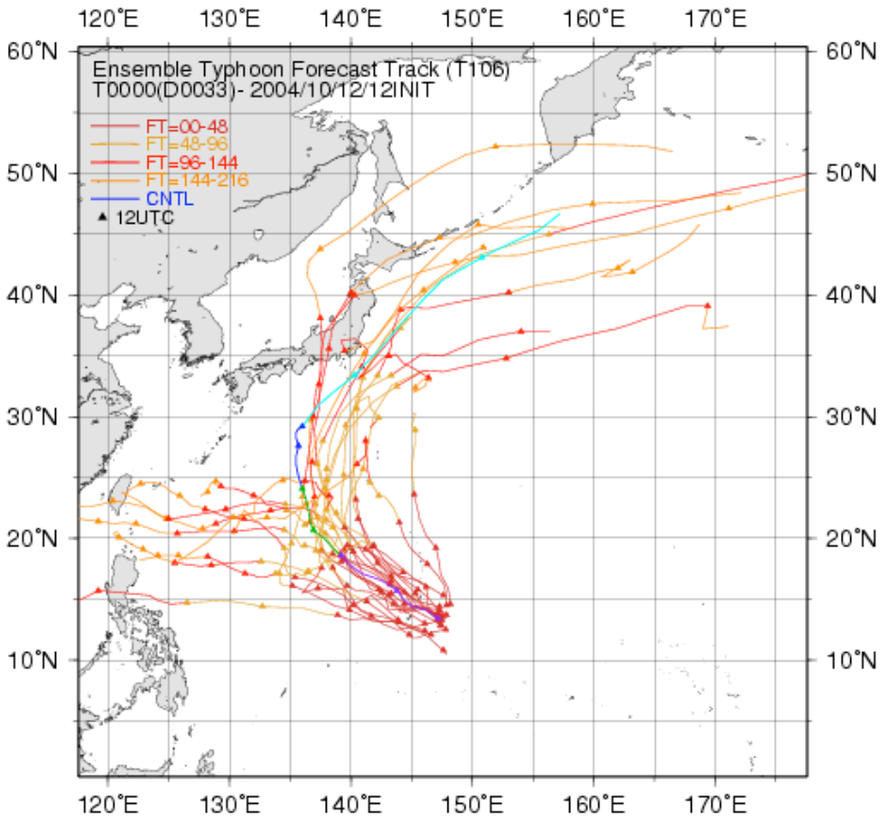

A/C Base
Misawa
Ship
Autosonde
アムノック川
朝鮮民主主義
人民共和国
黄河
大韓民国
Atsugi
日本
Hachijo
JMA Ship
人民共和国
長江
30N,125E
30N,140E
JMA Ship
Naze
沖縄島
Kadena
MinamiDaito
硫黄島
南鳥島
Ishigaki
Object Area
シー川
台湾
沖ノ鳥島
20N,125E
20N,140E
北マリアナ諸島
フィリピン
Guam
グアム
ベトナム
ボジア
メコン川

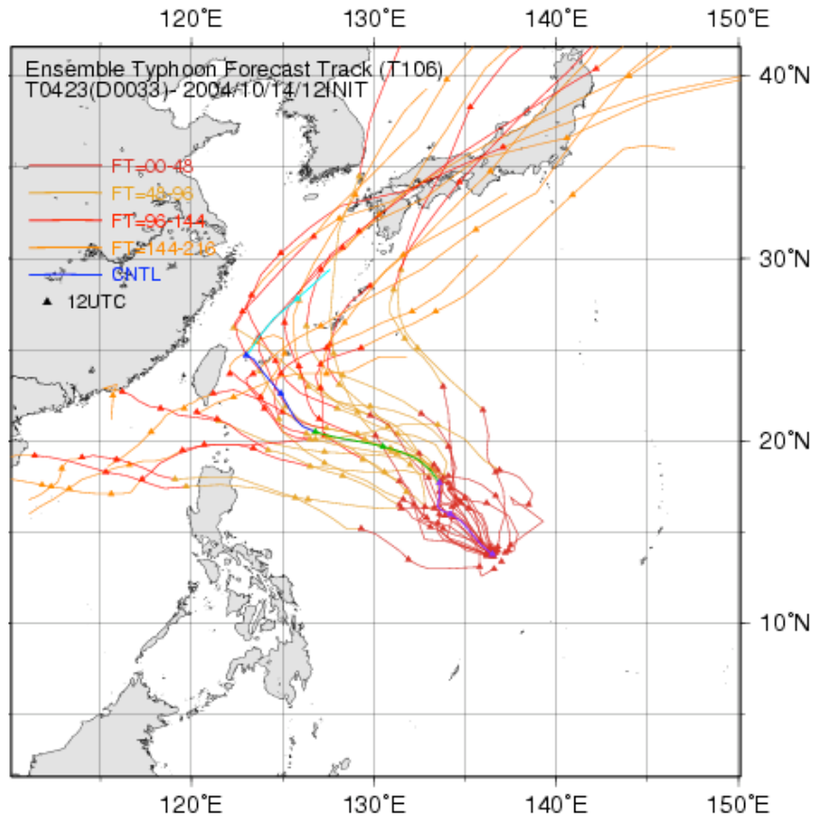
Typhoon Track Forecast for Tokage

10/12 12Z Initial (8 days before LF)



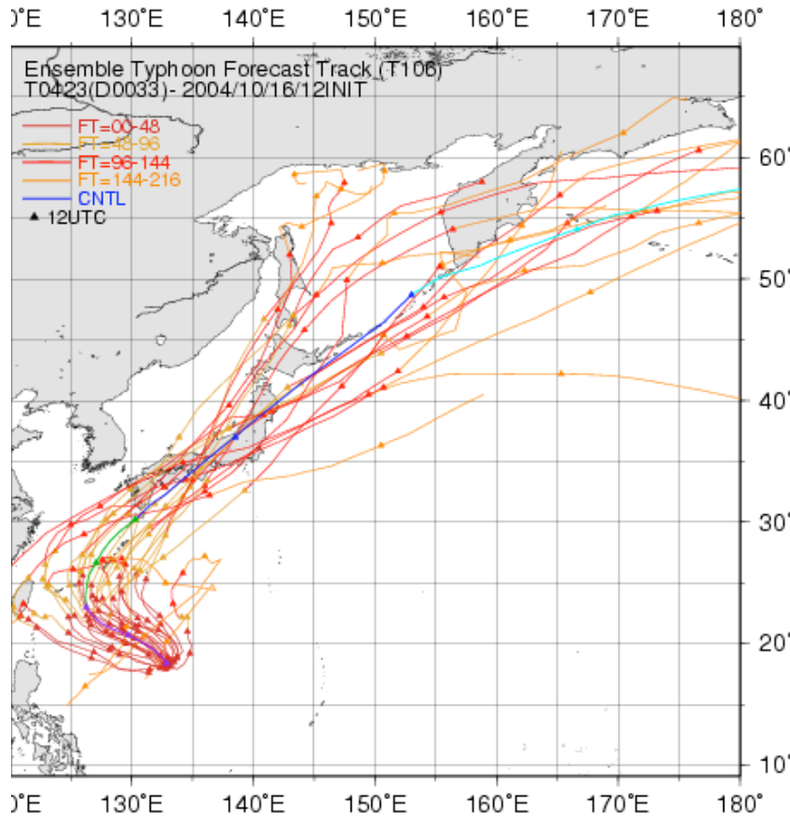
Split into N & W-ward

10/14 12Z Initial (6 days before LF)



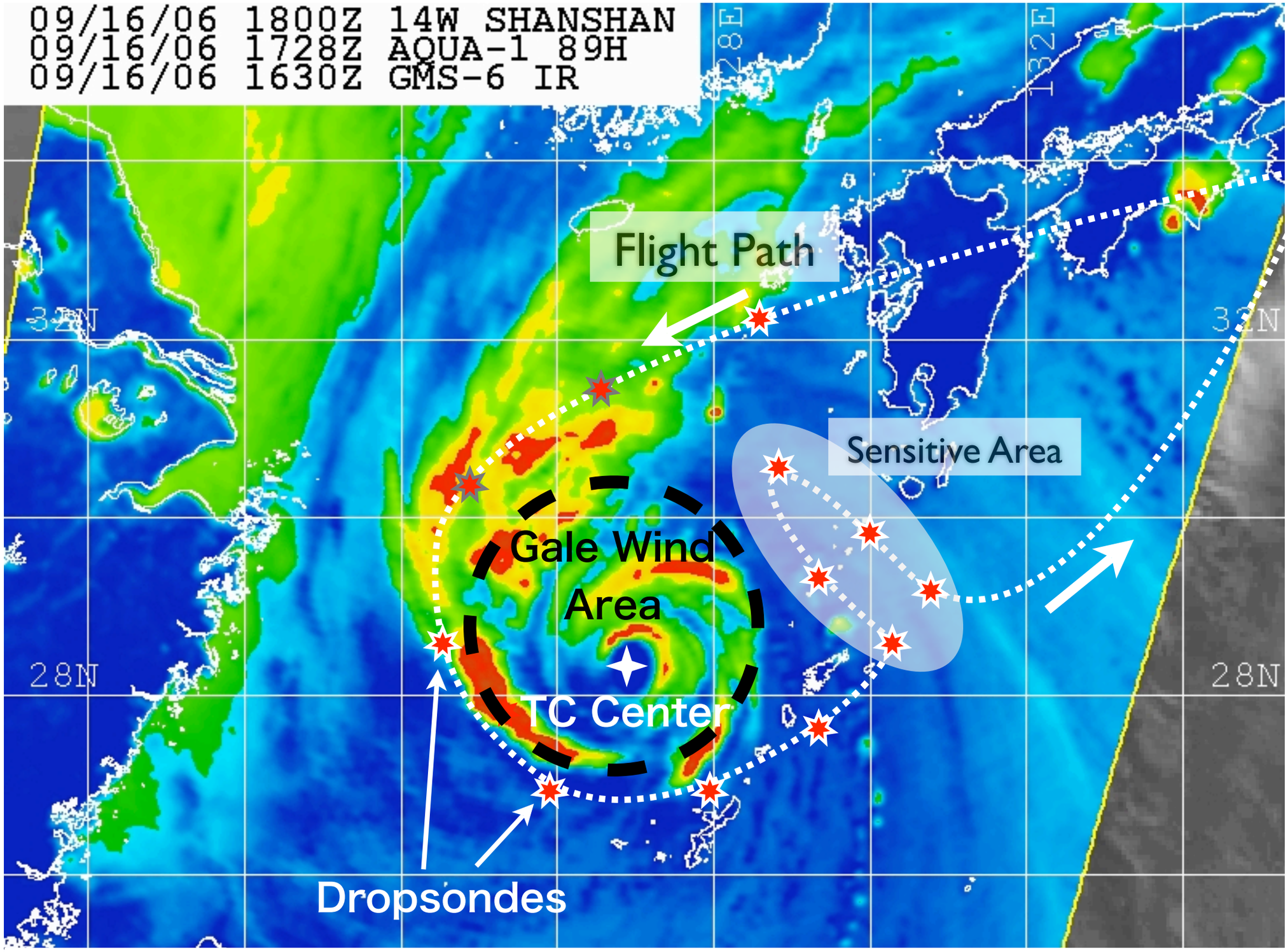
Recurve near Okinawa

10/16 12Z Initial (4 days before LF)

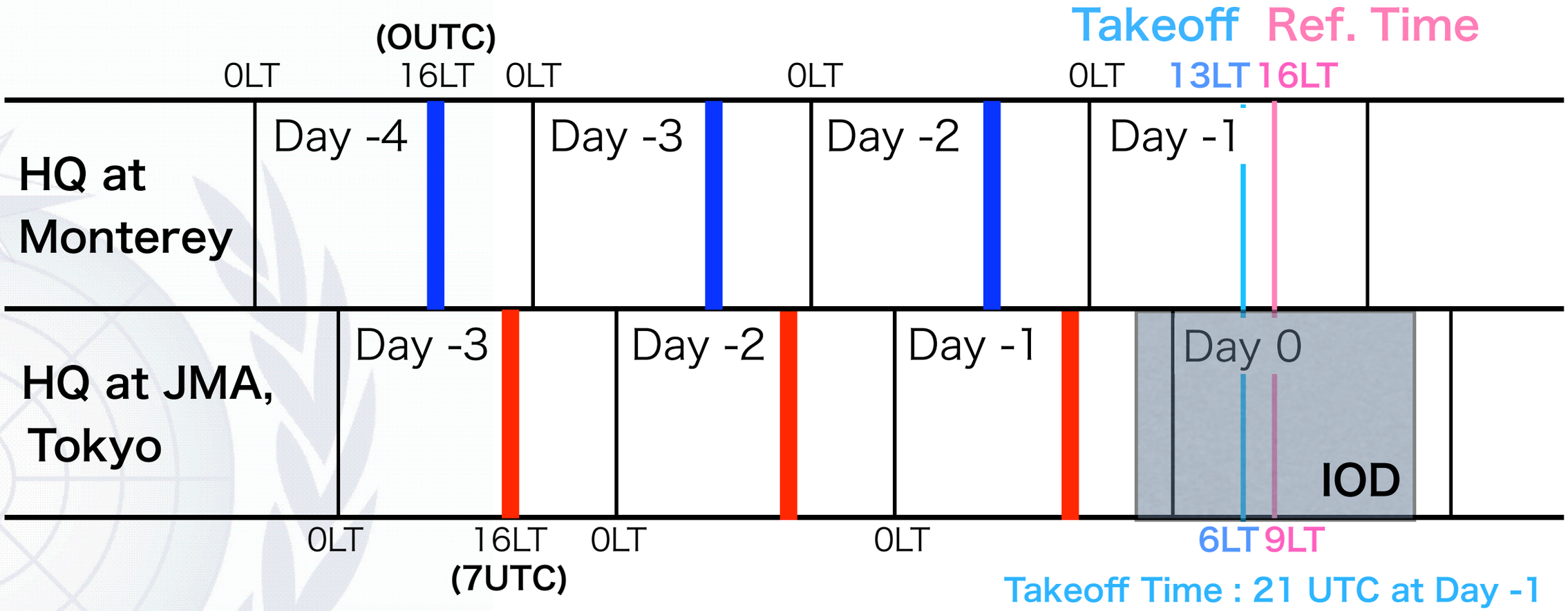


Consensus for LF

A Small-Jet Flight Simulation For Typhoon



Flight Decision Schedule (Plan)



Takeoff Time : 21 UTC at Day -1
Reference Time : 00 UTC at Day 0
IOD: 24 hours from 12 UTC at Day -1

Day -4	16LT at Monterey	Tentative Decision on Day 0 Operation
Day -3	16LT at Tokyo	Confirmation of Tentative Decision
Day -3	16LT at Monterey	Final Decision on Day 0 Operation
Day -2	16LT at Tokyo	Confirmation of Final Decision
Day -2	16LT at Monterey	Confirmation of Final Decision
Day -1	16LT at Tokyo	Confirmation of Final Decision
Day 0	6LT at Tokyo	**Takeoff and Landing at 10LT**

THORPEX

Intensive Observation Day (IOD)

- August - September 2008
- The reference time (observation time) be 00 UTC at Day 0.
- IOD be set within a few days, if a typhoon will be located in the object area, shown by the red rectangle at Day 0.
- To prepare observational facilities (JMA ships, Autosondes), we need to issue the tentative decision at least 3 days prior to Day 0.
- IOD be 1 day, from 12 hour earlier (that is, 12 UTC, Day -1) than the reference time, to 12 hour later (12 UTC, Day 0) than the reference time. Sometimes IOD would extend one more day, depending on typhoon movement.

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How do we decide IOD?

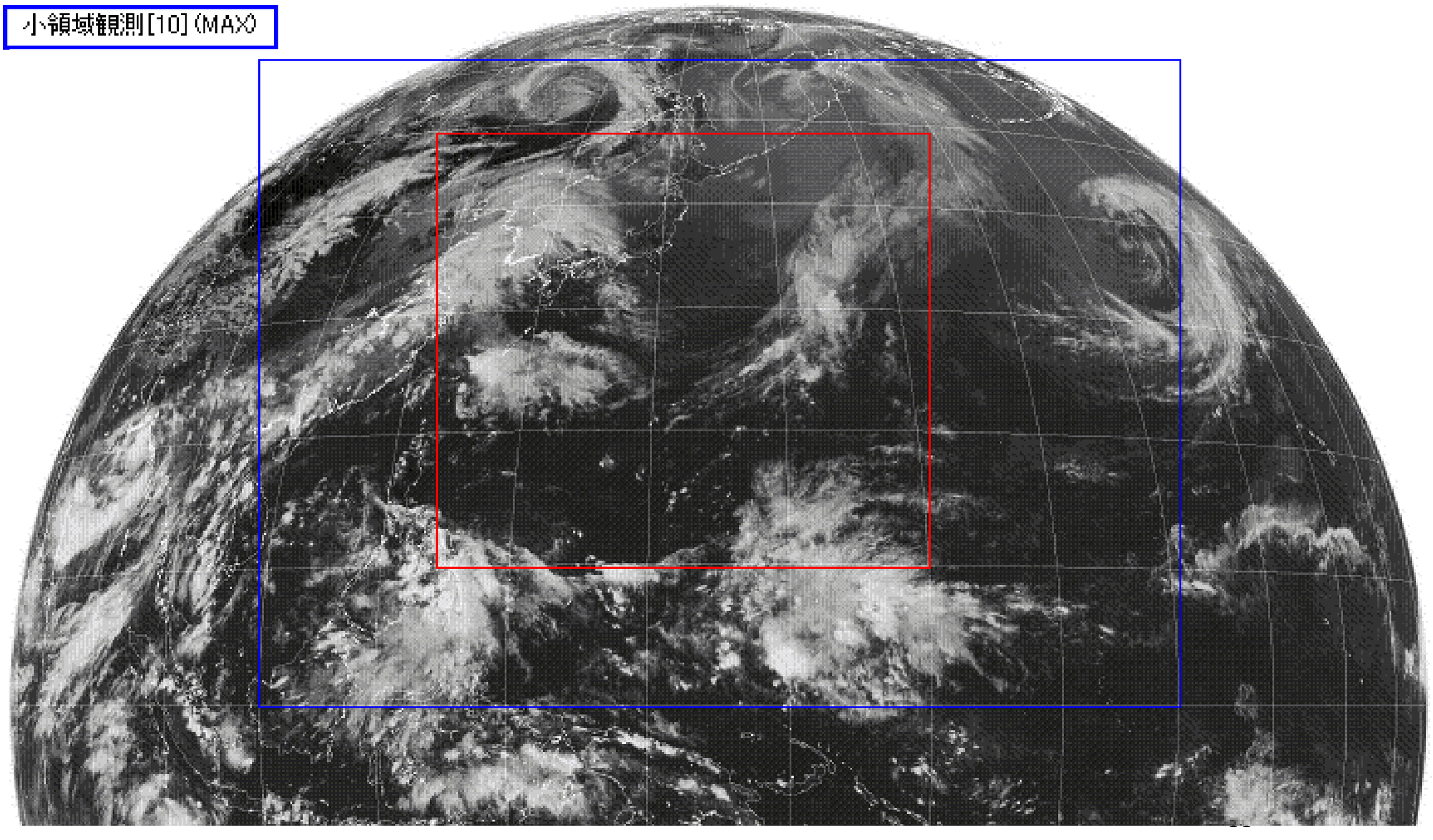
- ❖ Based on Ensemble Forecasts
- ❖ Bimodal Track Forecasts
  - One group toward Taiwan, another toward Japan
  - Good for Tandem Flights with **DOTSTAR**
- ❖ Large Spreads in Members
  - Large Uncertainty in Track Forecasts

MTSAT-2 5-min or 10-min Area

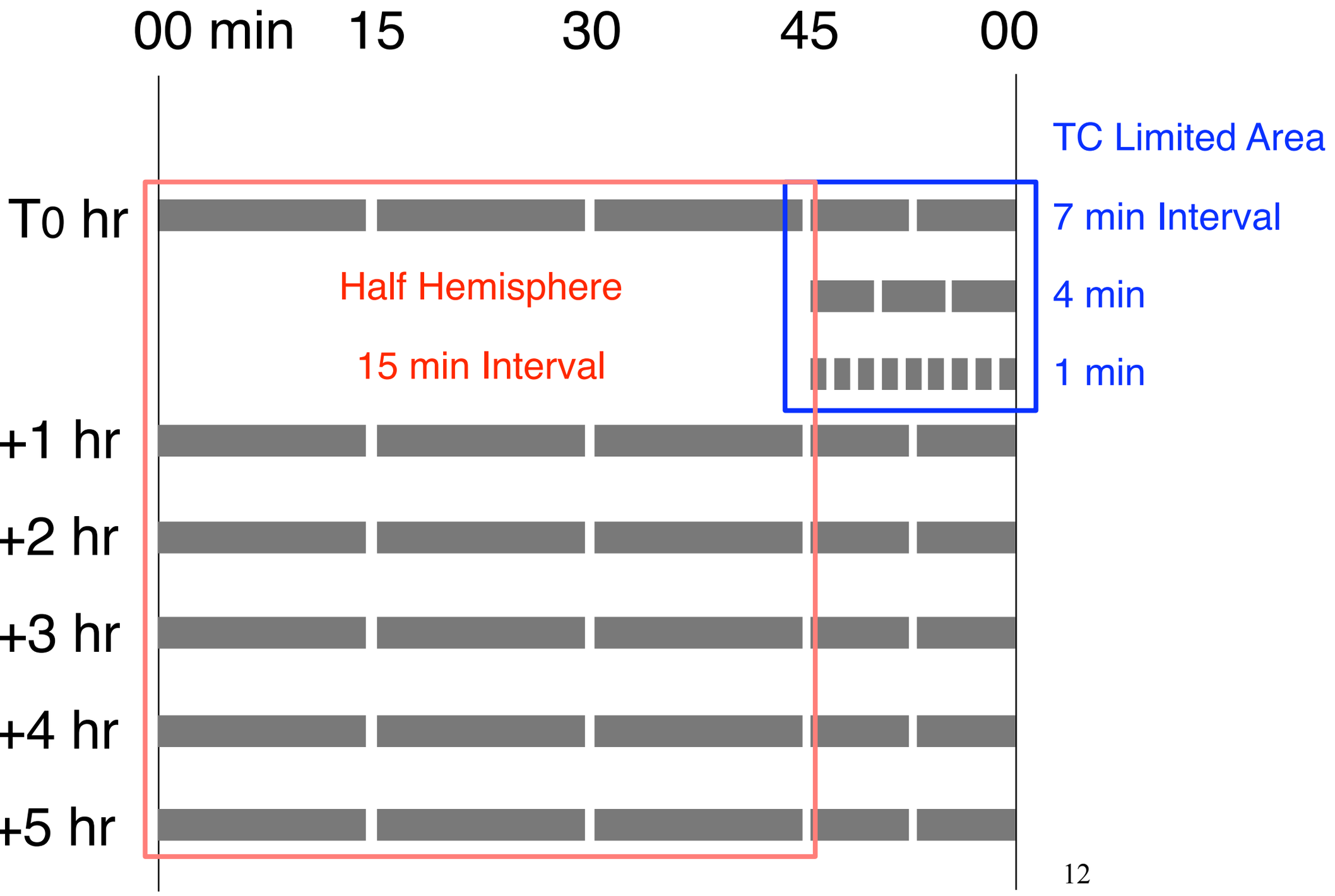
小領域観測[5分],[10分]最大観測範囲

小領域観測[5](MAX)

小領域観測[10](MAX)



Rapid Scan Scenarios



Issues

- Priority for Observation
- Coordination of Observation