

# MM5 SV products and Probex intensive observation data for T-PARC

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Naval Postgraduate School

Monterey, CA

# 1. Real time SV provision

## *Configuration for **real-time** Sensitivity Guidance*

Model : MM5 Adjoint Modeling System with Lanczos Algorithm

Domain : 50 x 50 x 14 (120 km)

Norm : Dry-TE

$$R = \iiint_{\sigma, x, y} \frac{1}{2} \left[ u'^2 + v'^2 + w'^2 + \left( \frac{g}{\overline{N\theta}} \right)^2 \theta'^2 + \left( \frac{1}{\overline{\rho} c_s} \right)^2 p'^2 \right] dx dy d\sigma$$

Two fixed target region : Taiwan , Japan

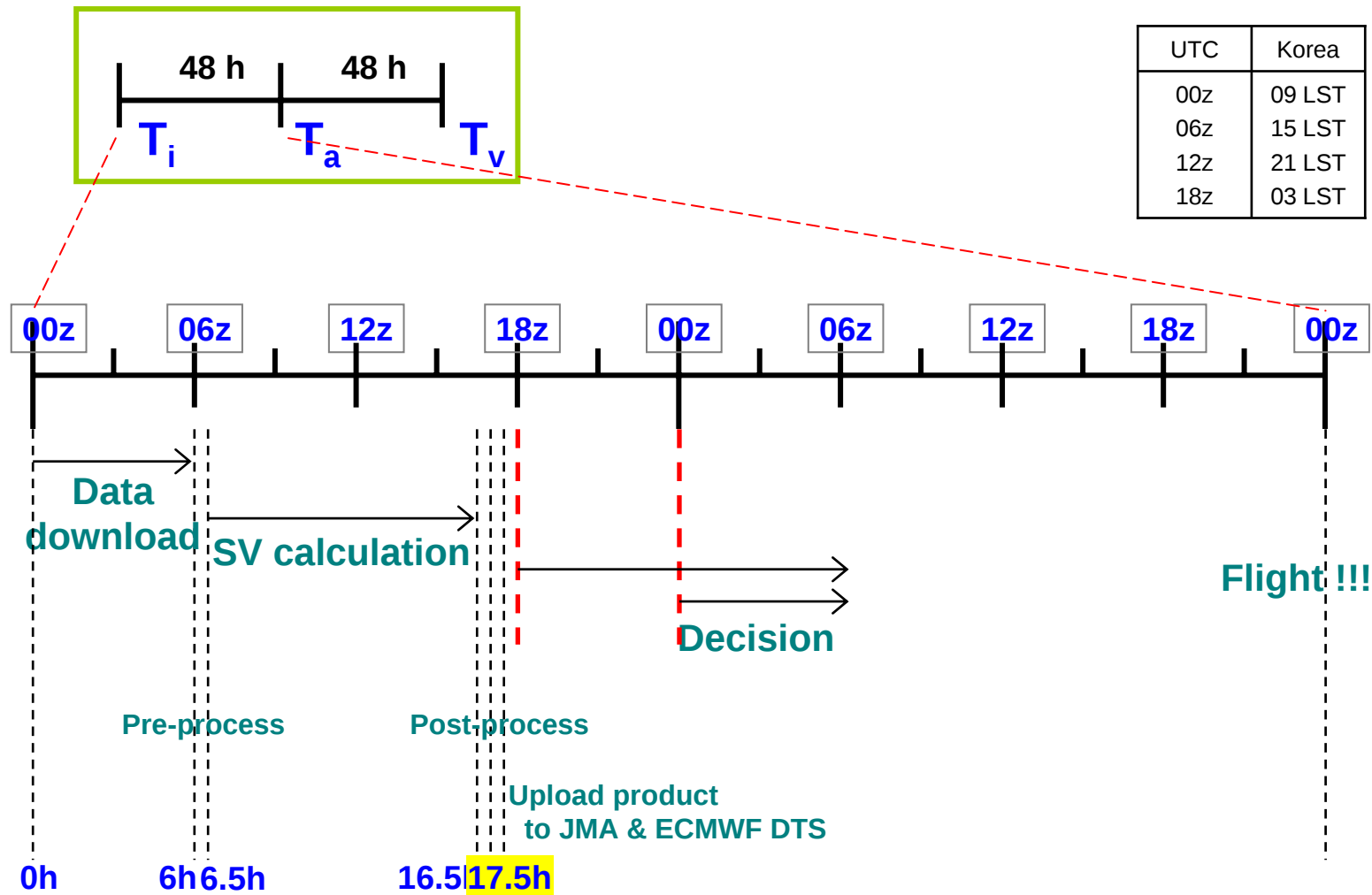
Moist Basic-state with simple moist linear physics

48h optimization time with 48h lead time

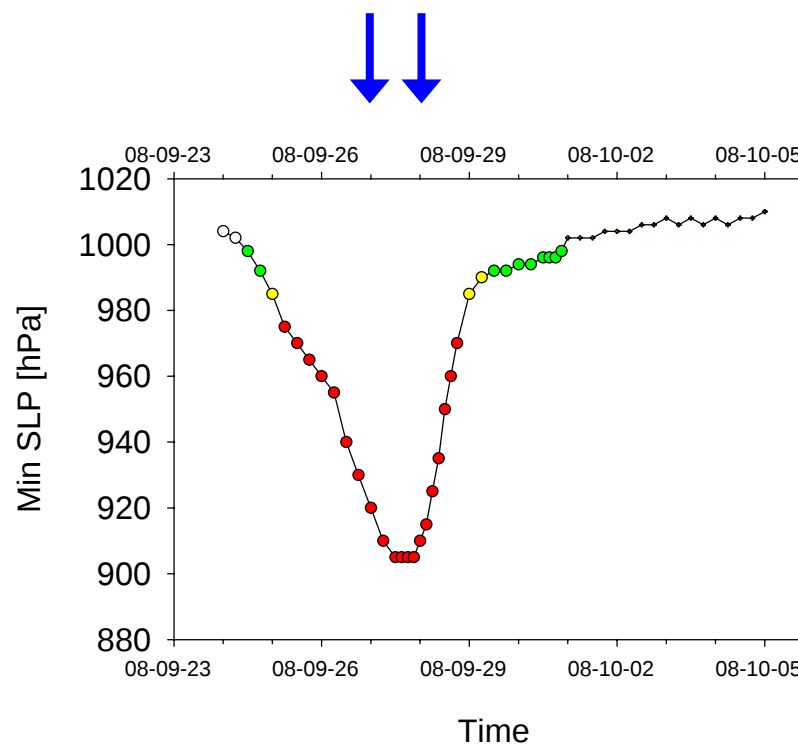
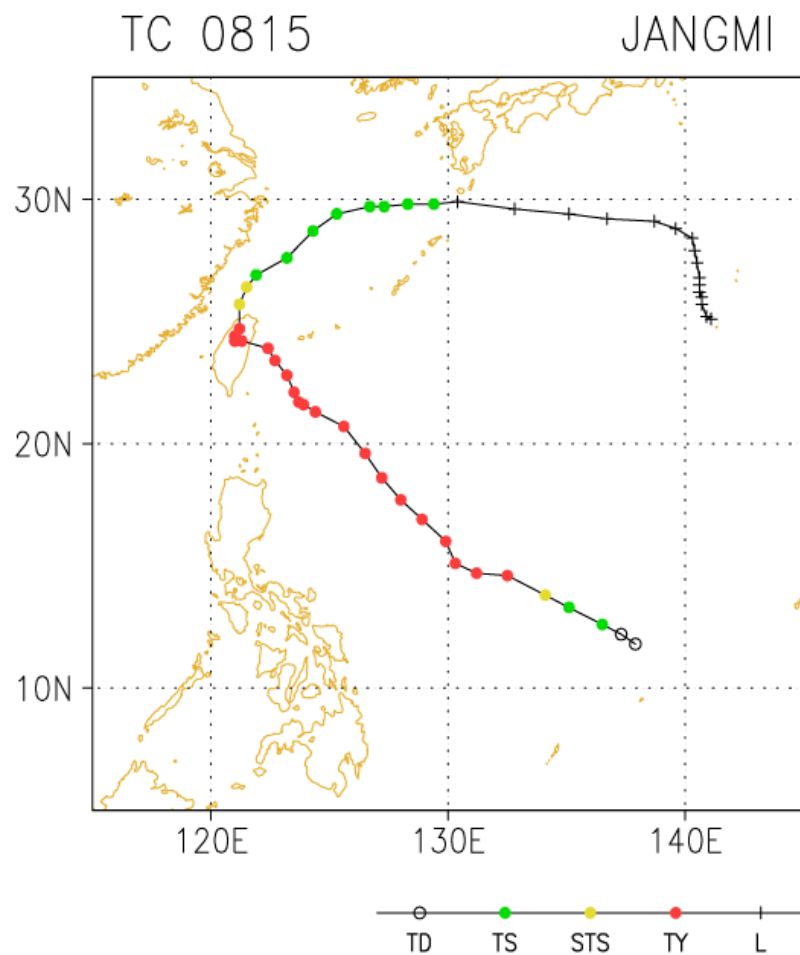
NCEP GFS data is used for initial and boundary conditions

# 1. Real time SV provision

## *Flowchart of Real-time SV sensitivity strategy*



## 2. SV guidance for TC JANGMI

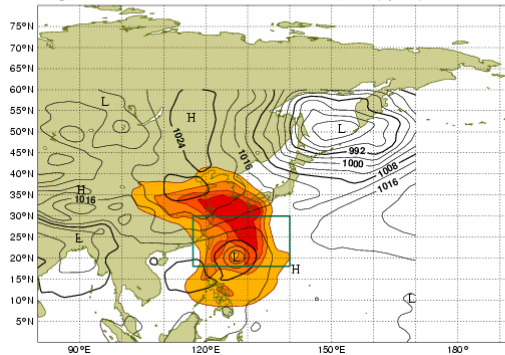


# 2. SV guidance for TC JANGMI

0000UTC 27 September 2008

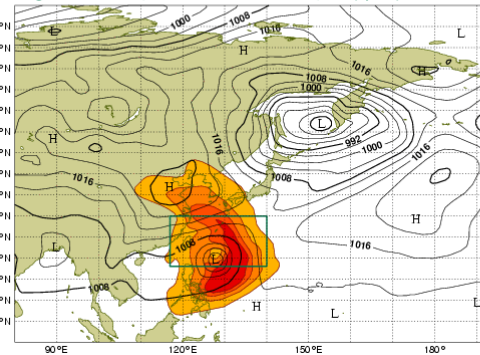
## UYonsei MM5SV

UYonsei-SAP based on MM5 TE-SVs (moist 120km) and MSLP (black solid co  
Valid time: 20080927, 00T  
Shading: areas of 8, 4, 2, 1 x 10<sup>4</sup> km<sup>2</sup>  
Trajectory Initialised from fc 20080925, 0 +48h (Lead time)  
Targ. time: 20080927, 00T / Verif. time: 20080929, 00T (opt:48)



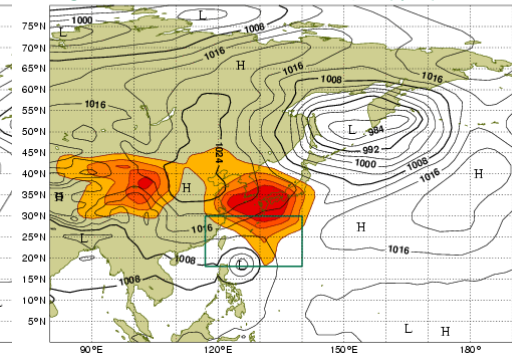
## NRL SV

NRL-SAP based on TE-SVs (dry TL79) and MSLP (black solid contour)  
Valid time: 20080927, 00T  
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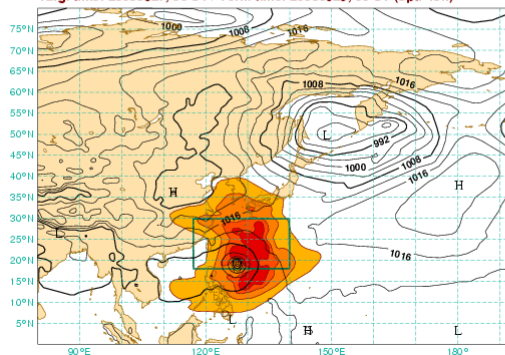
## JMA SV

JMA-SAP based on GSM TE-SVs (moist T63L40) and MSLP (black solid contour)  
Valid time: 20080927, 00T  
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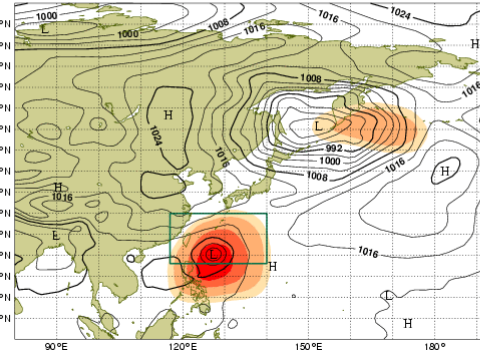
## ECMWF SV

ECMWF-SAP based on TE-SVs (moist TL95) and MSL  
Valid time: 20080927, 00 UT (Targeting Time)  
Shading: areas of 8, 4, 2, 1 x 10<sup>4</sup> km<sup>2</sup>  
trajectory Initialized from fc 20080925, 00 UT +48 h  
Targ. time: 20080927, 00 UT / Verif. time: 20080929, 00 UT (opt: 48h)



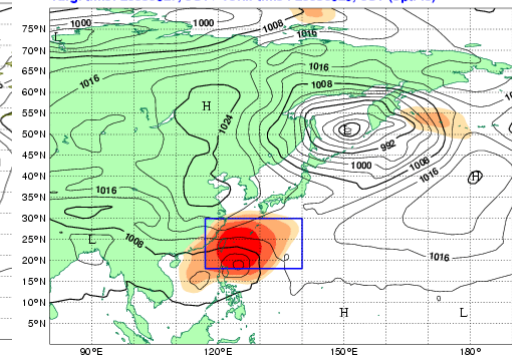
## UMiami-NCEP ETKF

UMiami/NCEP-SAP based on NCEP/ECMWF/CMC-Initialised ETKF summary map &  
Valid time: 20080927, 00T  
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## UKMO ETKF

UKMO-SAP based on MOGREPS15-Initialised ETKF summary map and MSLP  
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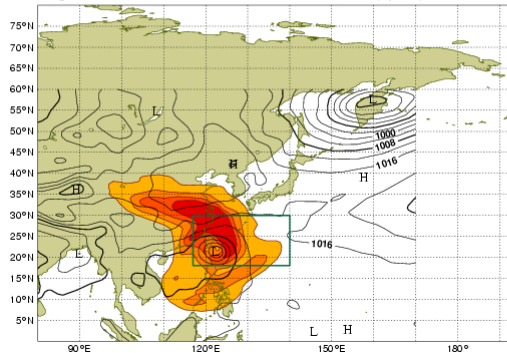


# 2. SV guidance for TC JANGMI

0000UTC 28 September 2008

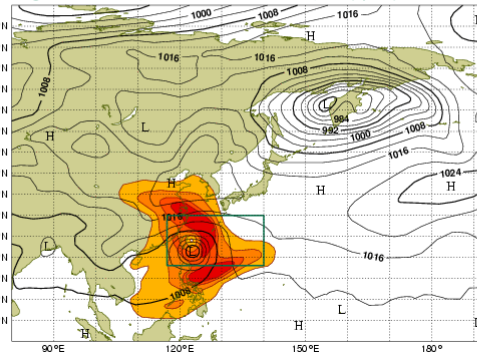
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Targ. time: 20080928, 00T / Verif. time: 20080930, 00T (opt:48)



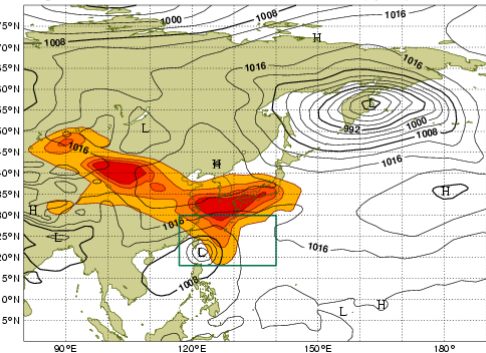
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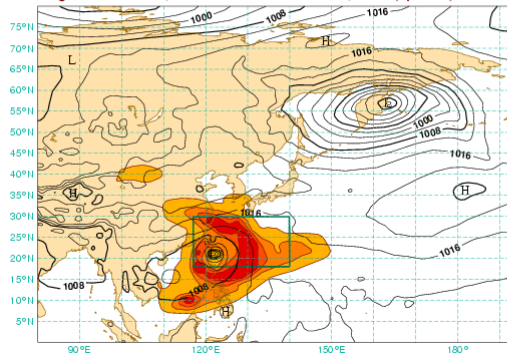
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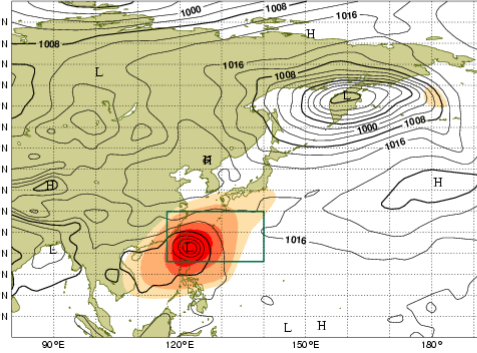
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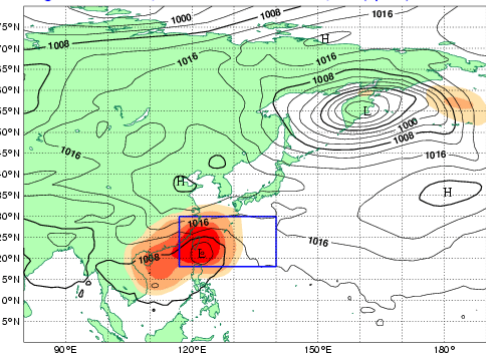
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Targ. time: 20080928, 00T / Verif. time: 20080930, 00T (opt:48)



# 3. Products

## MM5 SV products

- 1) Format and access  
image file and grib file  
<http://apdal.yonsei.ac.kr>  
email: khm@yonsei.ac.kr
- 2) Contents  
MM5 SV for three target regions (Japan, Taiwan, Korea)
- 3) Period  
Japan : 00 UTC from 18 April to 26 December 2008  
Taiwan : 00 UTC from 11 May to 26 December 2008  
Korea : 00 UTC from 4 June to 26 December 2008

# 3. Products

## Probex intensive observation data

- 1) Gosan upper air observation (ascii)
  - Station number : 47185, latitude : 33.29, longitude : 126.15
  - Time period : 1 Aug. - 4 Oct. 2008, 4 times(00/06/12/18UTC)
  - Variables : Pressure, Height, Temperature, RH, Dewp,  
Wind direction, Wind speed
- 2) Haenam upper air observation (ascii)
  - Station number : 47261, latitude : 33.55, longitude : 126.57
  - Time period : 25 Aug. - 4 Oct. 2008, 4 times(00/06/12/18UTC)
  - Variables : Pressure, Height, Temperature, RH, Dewp,  
Wind direction, Wind speed

# 3. Products

## Probex intensive observation data

- 3) Haenam Windprofiler (both binary and ascii)
  - Time period : 1 Aug. - 4 Oct. 2008, every ten minutes
  - Variables : U,V,W wind speed, Signal noise ratio
- 4) Haenam Microwave Radiometer (ascii)
  - Time period : 1 Aug. - 4 Oct. 2008, every 2 minutes
  - Variables : Brightness temperature, temperature, RH,  
Water vapor density, Liquid Water Content
- 5) Access  
e-mail address : kyh@kma.go.kr, jeh@kma.go.kr