

TC products based on ensemble forecast

Outline

1. *Ensemble based dynamical uncertainty circles around RSMC TC tracks*
2. *Ensemble based products used in operation*



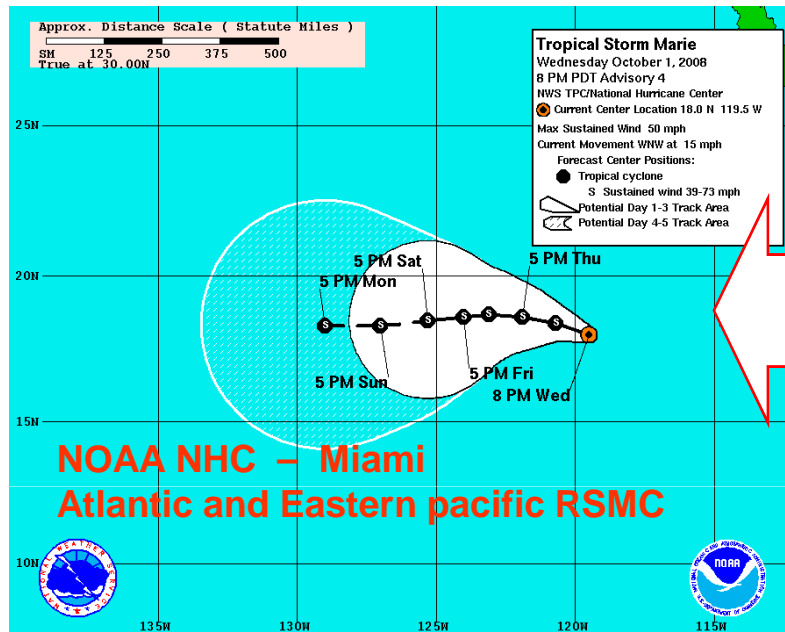
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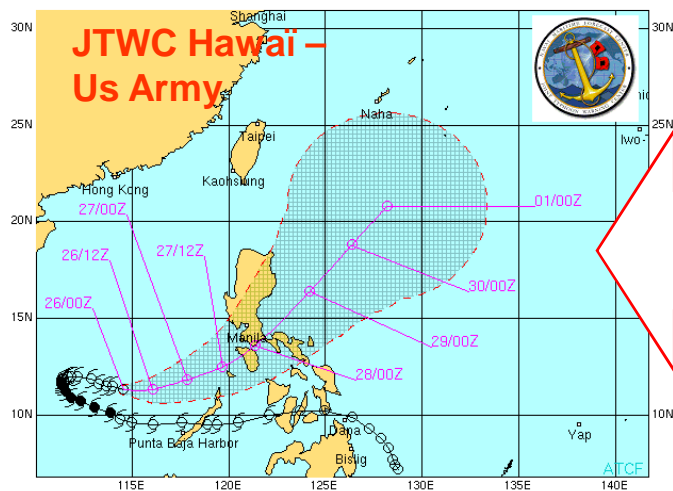
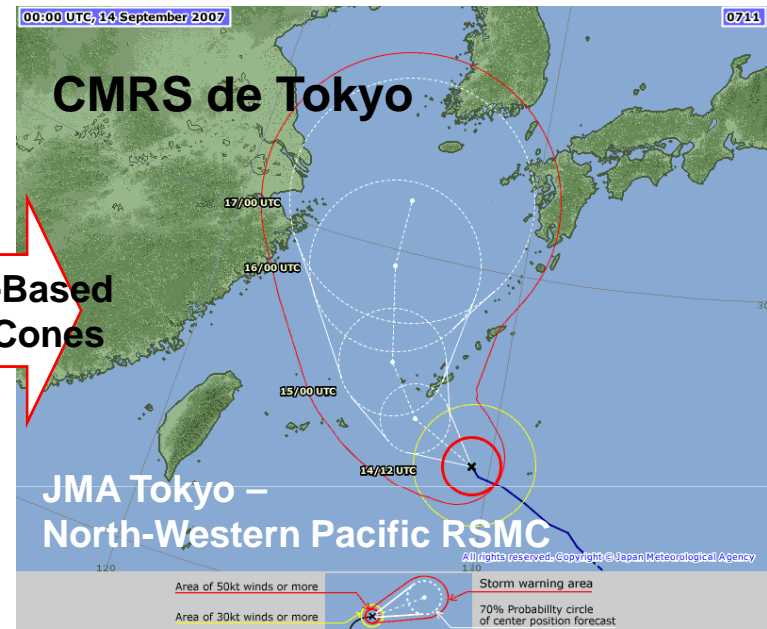


METEO FRANCE
Toujours un temps d'avance

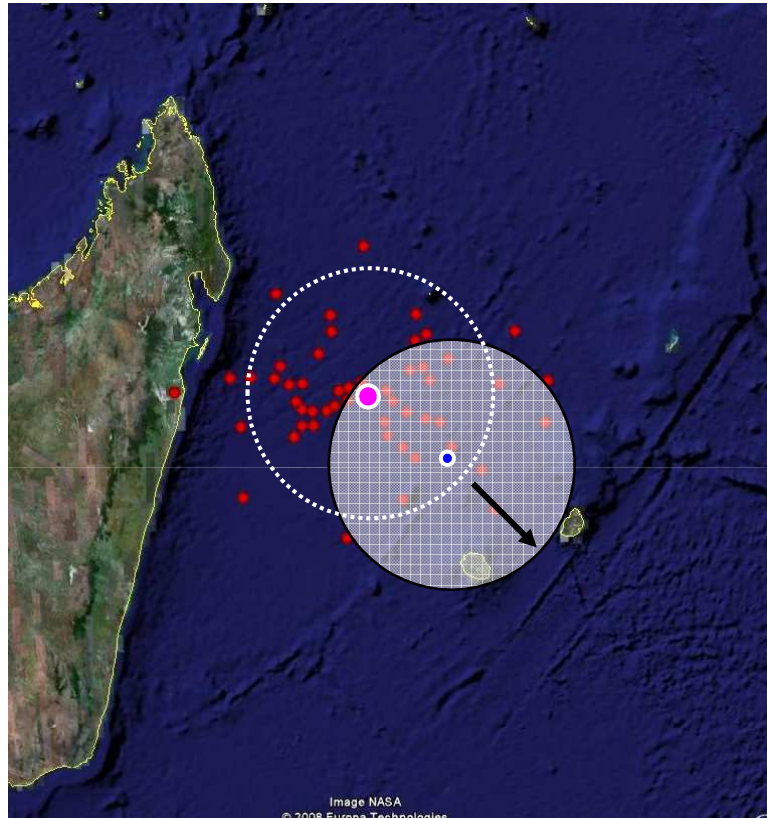
Uncertainty Cones



**Climatology-Based
Uncertainty Cones**



Construction of a 75% uncertainty circle for 48h lead time



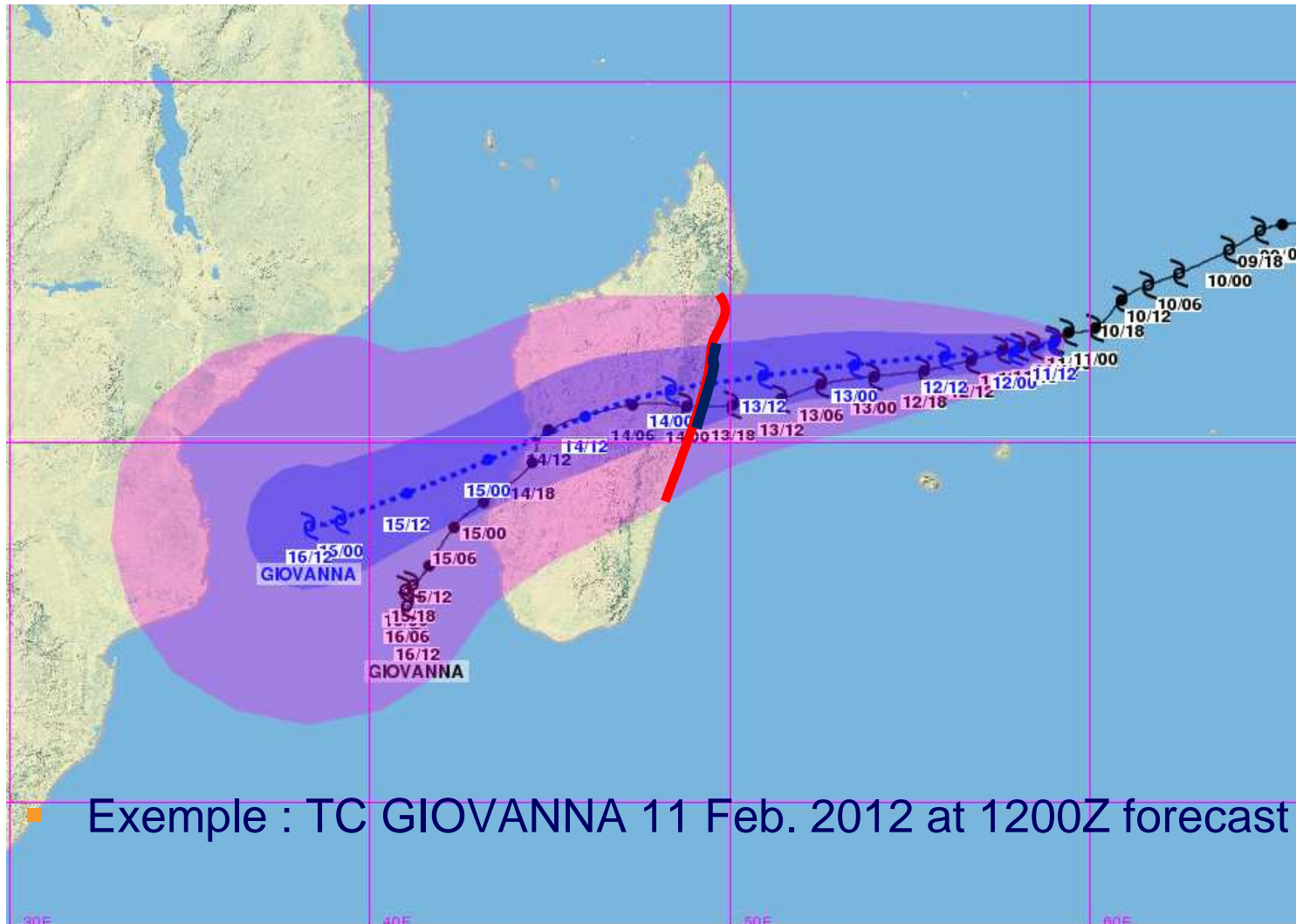
Ensemble members in red
Ensemble mean in pink
RSMC forecast position in blue

Forecast probability is 75 %
→ Circle centred on ensemble mean position build than 75 % (38/51) of the members are inside.

Then the circle is translated on the RSMC forecast position at the same lead time

Thierry Dupont, Matthieu Plu, Philippe Caroff, and Ghislain Faure, 2011:
Verification of Ensemble-Based Uncertainty Circles around Tropical
Cyclone Track Forecasts. *Wea. Forecasting*, 26, 664–676.

Example

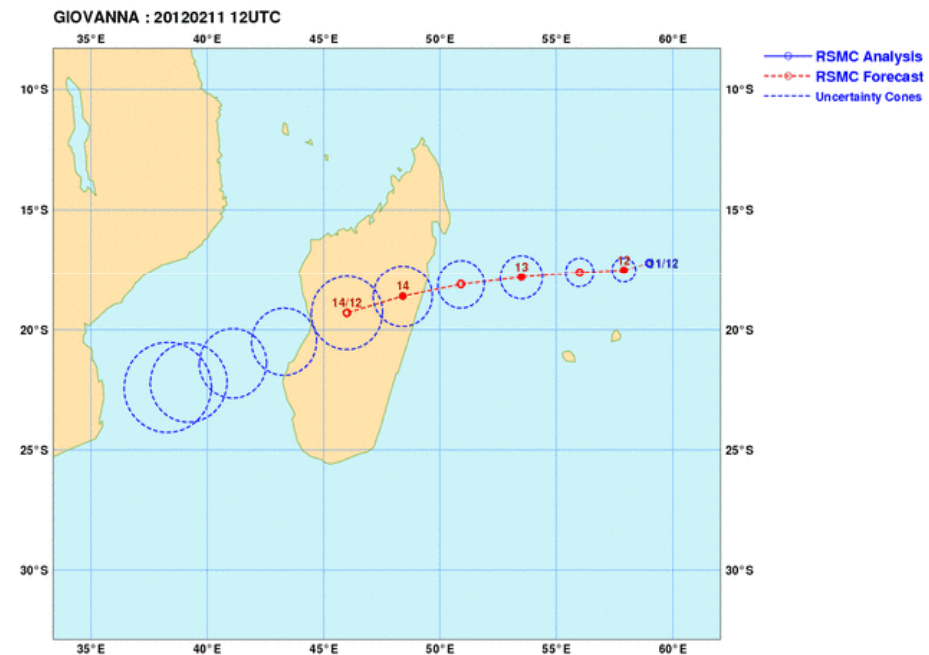
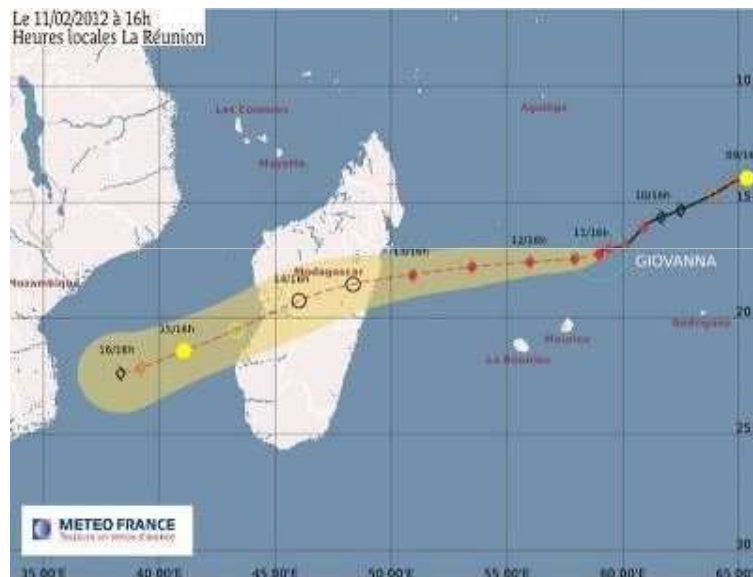


■ Exemple : TC GIOVANNA 11 Feb. 2012 at 1200Z forecast

RSMC La Réunion

EPS based Uncertainty Cones Products

- Final Graphical Products for TC GIOVANNA 11 Feb. 2012 at 1200Z forecast



Public Website of RSMC La réunion

Southern Africa SWFDP Extranet Website

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METEO FRANCE
Toujours un temps d'avance

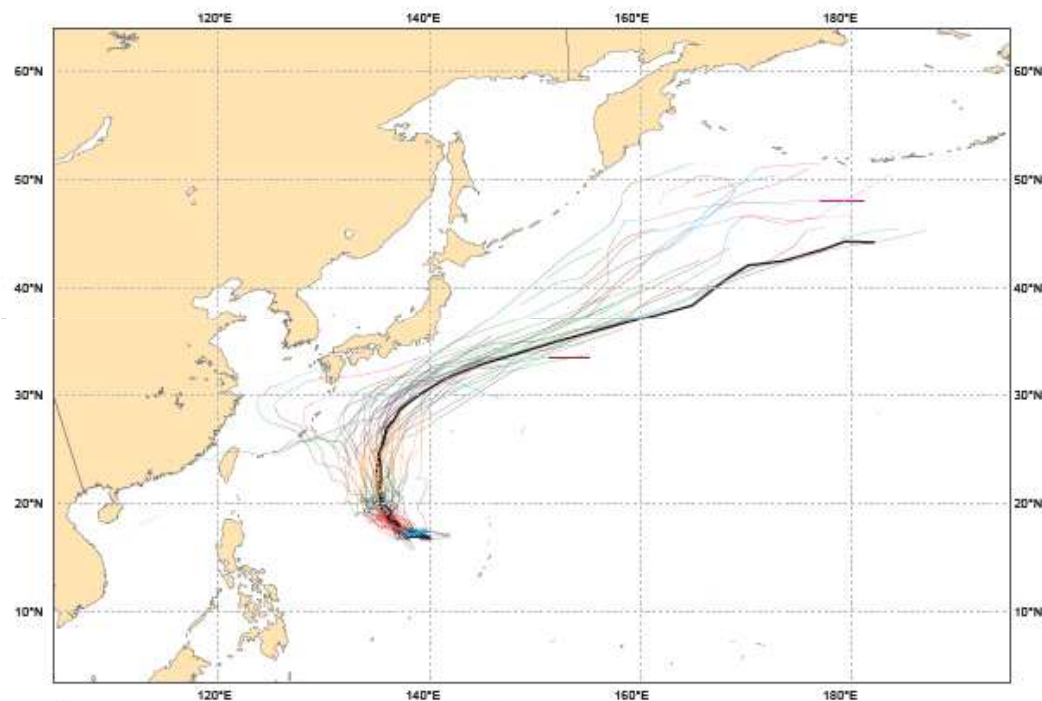
ECMWF Website Real Time products (2) - Restricted Access Tropical Cyclone

Date 20150922 00 UTC @ECMWF

Individual trajectories for **21W** during the next **240** hours

tracks: **thick solid**=HRES; **thick dot**=CTRL; **thin solid**=EPS members [coloured]

0-24h 24-48h 48-72h 72-96h 96-120h 120-144h 144-168h 168-192h 192-216h 216-240h

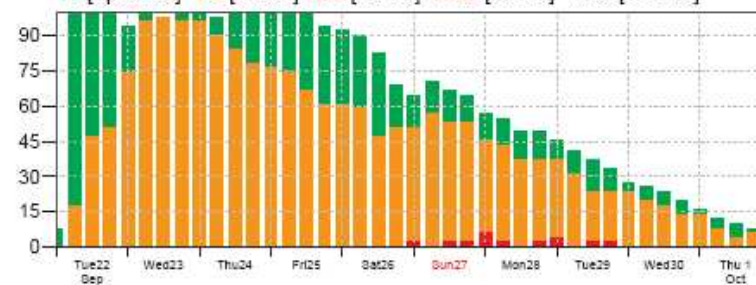


List of ensemble members numbers forecast Tropical Cyclone

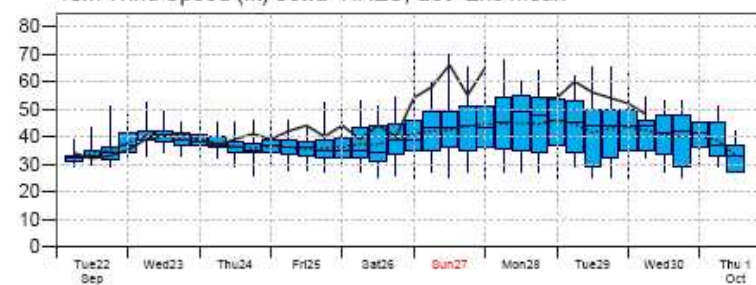
Intensity category in colours: **TD**[up to 33] **TS**[34-63] **HR1**[64-82] **HR2**[83-95] **HR3**[> 95 kt]

+024 h :	hr	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
+048 h :	hr	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
+072 h :	hr	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
+096 h :	hr	01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
+120 h :	hr	02	03	04	05	07						10	11	12	13	15	16	18	19	20	21	22																													
+144 h :	hr	02	03	04	05	07						10																																							
+168 h :	hr	02	03	04	05	07						10																																							
+192 h :	hr																																																		
+216 h :																																																			
+240 h :																																																			

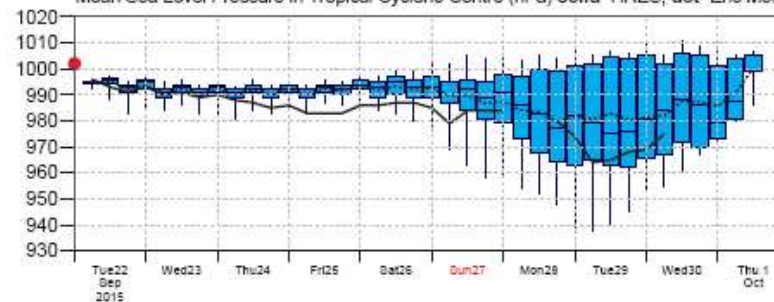
Probability (%) of Tropical Cyclone Intensity falling in each category
TD[up to 33] **TS** [34-63] **HR1**[64-82] **HR2** [83-95] **HR3** [> 95 kt]



10m Wind Speed (kt) **solid**=HRES; **dot**=Ens Mean



Mean Sea Level Pressure in Tropical Cyclone Centre (hPa) **solid**=HRES; **dot**=Ens Mean



ECMWF Website Real Time products (1) - *Restricted Access* Cyclogenesis

<http://www.e>

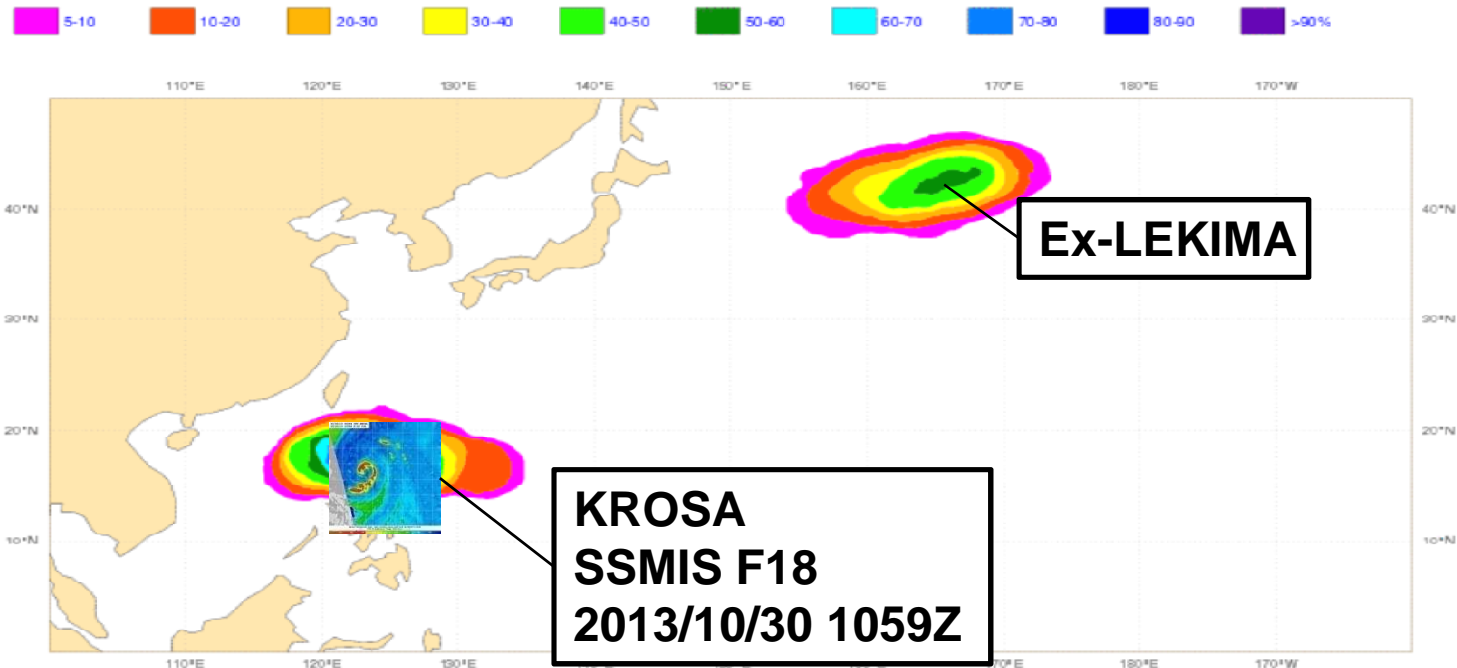
sis/

Tropical cyclone activity (in
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Tropical cyclone activity (including gen
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Intensity
Area
Forecast base time
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Postscript (250 Kbytes)

Tropical cyclone activity (including genesis)

Range Intensity Area Forecast base time

Tropical Storm Strike Probability Start date: Monday 28 October 2013 at 12 UTC
valid for 48 hours from Tuesday 29 October 2013 at 12 UTC to Thursday 31 October 2013 at 12 UTC
Probability of a Tropical Storm passing within 300km radius



Use of TIGGE data: Multi-ensembles and super-ensembles

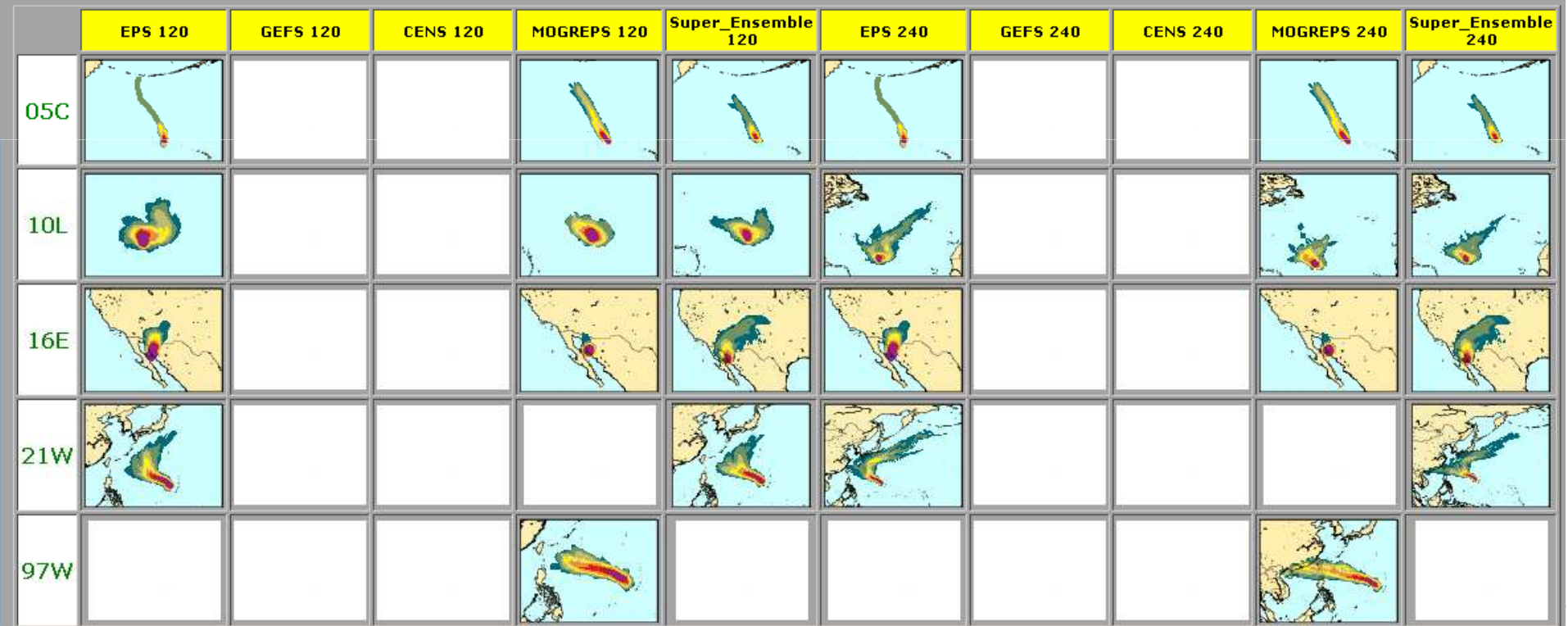
Choix du réseau

2015-09-21 12UTC

STRIKE PROBABILITIES : PROJET TIGGE



STRIKE PROBABILITY THAT A SYSTEM WILL PASS WITHIN 120 KM RADIUS BASED ON AVAILABLE SINGLE ENSEMBLES AND MULTI-ENSEMBLES



Inhouse made Synergie Cyclone Layers
MSLP Spaghettis(998-1000-1004-1008hPa)

