TC products based on ensemble forecast

Sébastien LANGLADE – September 2015 -
1. Ensemble based dynamical uncertainty circles around RSMC TC tracks

2. Ensemble based products used in operation
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2. Ensemble based products used in operation
Uncertainty Cones

- Climatology-Based Uncertainty Cones
- Hybrid Uncertainty Cone (Climatology + Forecast Winds extension)

NOAA NHC - Miami
Atlantic and Eastern Pacific RSMC

CMRS de Tokyo

JMA Tokyo - North-Western Pacific RSMC

JTWC Hawaii - US Army
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

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
1. Ensemble based dynamical uncertainty circles around RSMC TC tracks

2. Ensemble based products used in operation
Date 20150922 00 UTC

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+]

Left: Track of Tropical Cyclone 21W

Right: Probability (%) of Tropical Cyclone Intensity falling in each category

TD [up to 33], TS [34-63], HR1 [64-82], HR2 [83-95], HR3 [95+]

Graphs showing 10m Wind Speed (kt) and Mean Sea Level Pressure in Tropical Cyclone Centre (hPa)

HRES dots = Ensemble Mean
ECMWF Website Real Time products (1) - Restricted Access

Cyclogenesis

http://www.ecmwf.int/products/forecasts/d/charts/medium/eps/genesis/ta_genesis/

Thierry Dupont – RSMC La Réunion - Novembre 2013

KROSA SSMIS F18 2013/10/30 1059Z

Ex-LEKIMA
## Use of TIGGE data: Multi-ensembles and super-ensembles

### STRIKE PROBABILITIES : PROJET TIGGE

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

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

Pmer - isoline 1004 hPa
modele du 12/11/2009 0h echeance 72h valide le 15/11/2009 00h