

TIGGE Real-Time Tropical Cyclone Data for Regional Applications

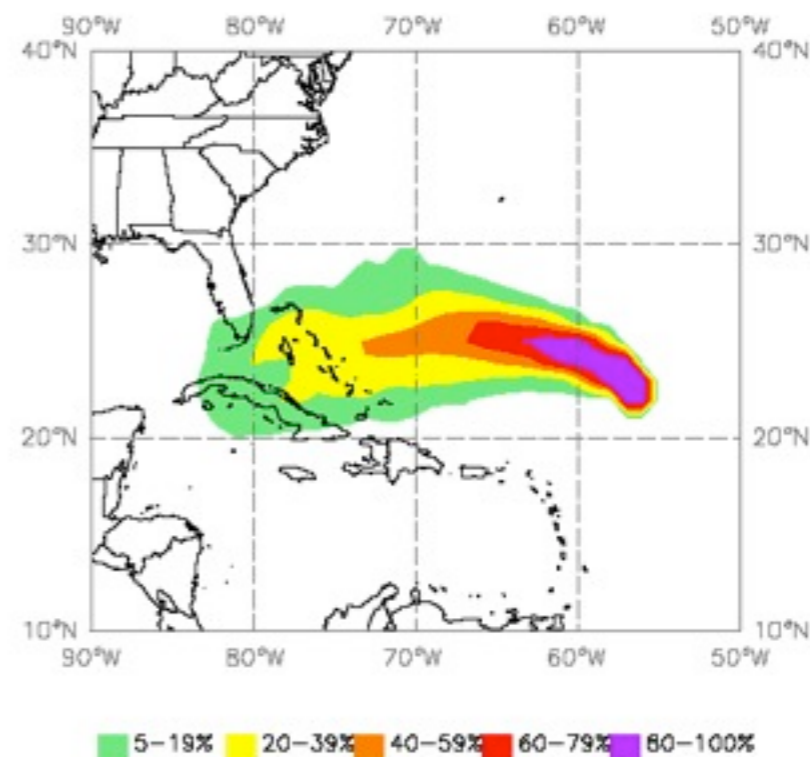
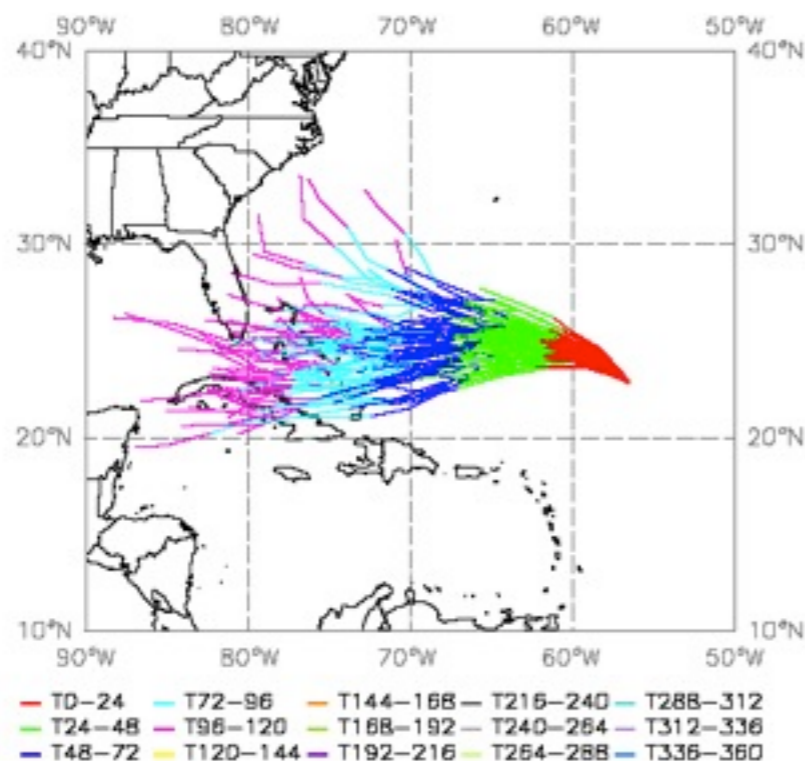
North Western Pacific Tropical Cyclone (Track) Ensemble Forecast Research Project (NW Pacific TC Project)

a WWRP Research Development Project

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WMO/WWRP THORPEX

Towards the Global Interactive Forecast System (GIFS)

- The objective of the GIFS is to realise the benefits of THORPEX research by improving the delivery of improved forecasts of high-impact weather.
- As a first step, the GIFS-TIGGE working group set up a pilot project for the exchange of real-time tropical cyclone predictions using “Cyclone XML” format.
- Forecast and research demonstration projects are being developed by the GIFS-TIGGE WG and regional centres to predict tropical cyclone tracks and heavy rainfall



A First Step: NW Pacific Tropical Cyclone Ensemble Forecast Research Project

- A five-year regional project with both a research and operational component that will feed into national efforts such as **for the Shanghai MHEWS Project and Landfall Typhoon Forecast Demonstration Project.**
- Intent is to make **GIFS-TIGGE typhoon track data available to ESCAP/WMO Typhoon Committee members including RSMCs in real time beginning May 2010** via a password protected web site
- **The web site will also be linked to the WMO/TCP homepage.**
- Training for operational forecasters and evaluation of the utility of such data sets in a forecast environment
- Research efforts will attempt to develop and extract useful information from TIGGE ensemble data and develop products where appropriate
- **Product development to feed into the operational SWFDP in Africa and then in the S. Pacific**
- **Close Collaboration/Coordination with GIFS-RDP through TIGGE WG, ARC, WMO/TCP, WWRP/TCP, JWGFVR, RSMCs, and TCWCs**

TIGGE Data Policy

- **The data is for research purpose only. Not for operation nor public yet. No commercial use.**
 - The information through a Web site should be distributed via ID with password
- The data will be utilized for **evaluation purpose for forecasters**, for feasibility studies on future operation of ensemble data
- The data is **available in 48 hour delay** after the initial forecast time.
- **The data will be available in real-time, for special requests**, like international field experiment, T-PARC, to the **THORPEX IPO**.

A Sample Page of the NWP TC Project

Tropical Cyclone Ensemble Information HomePage

Real time

All

CMA

CMC

ECMWF

JMA

KMA

NCEP

STI

UKMO

Ensemble

2010

Aug

18

12UTC

Prev.

Update Display

Next

Deterministic

Ensemble Track Forecasts up to 5 days

Approach Probability in 5 days

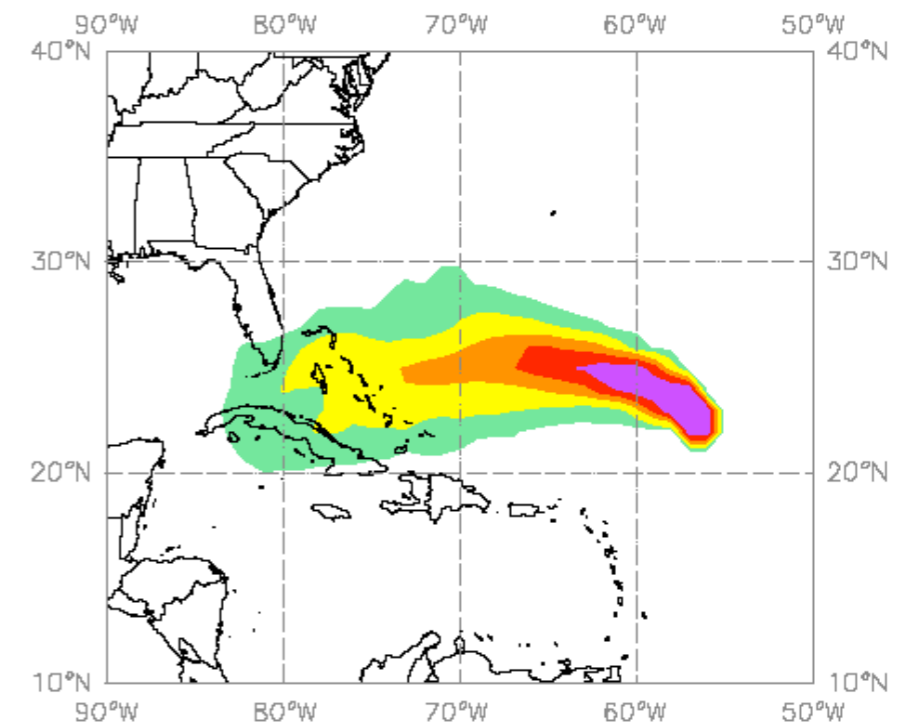
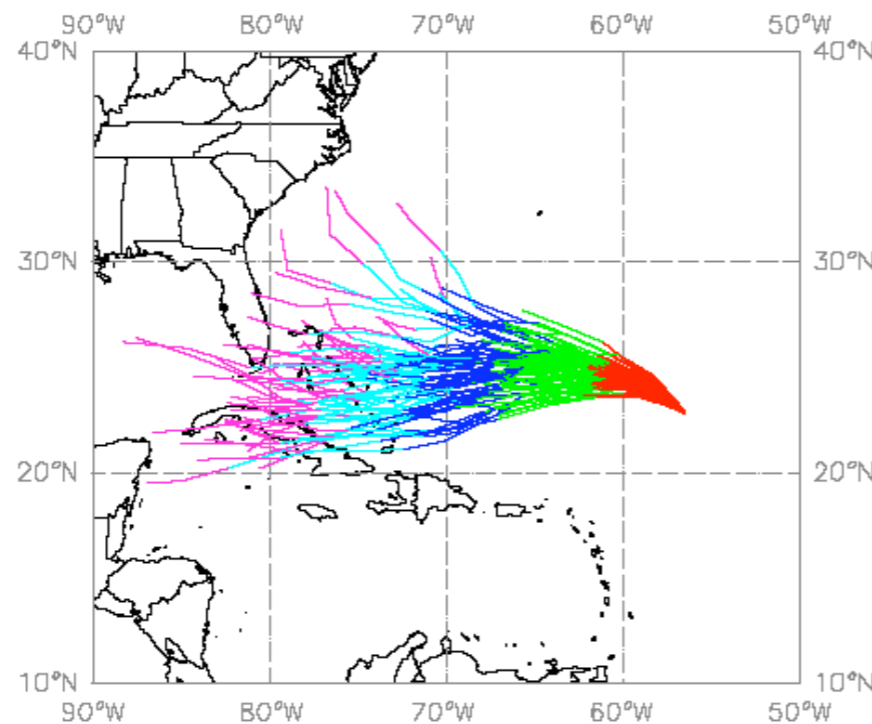
Archive

Ensemble

Deterministic

Discussion

Link



— TD-24 — T72-96 — T144-168 — T216-240 — T288-312
— T24-48 — T96-120 — T168-192 — T240-264 — T312-336
— T48-72 — T120-144 — T192-216 — T264-288 — T336-360

5-19% 20-39% 40-59% 60-79% 80-100%

Available in May 2010!



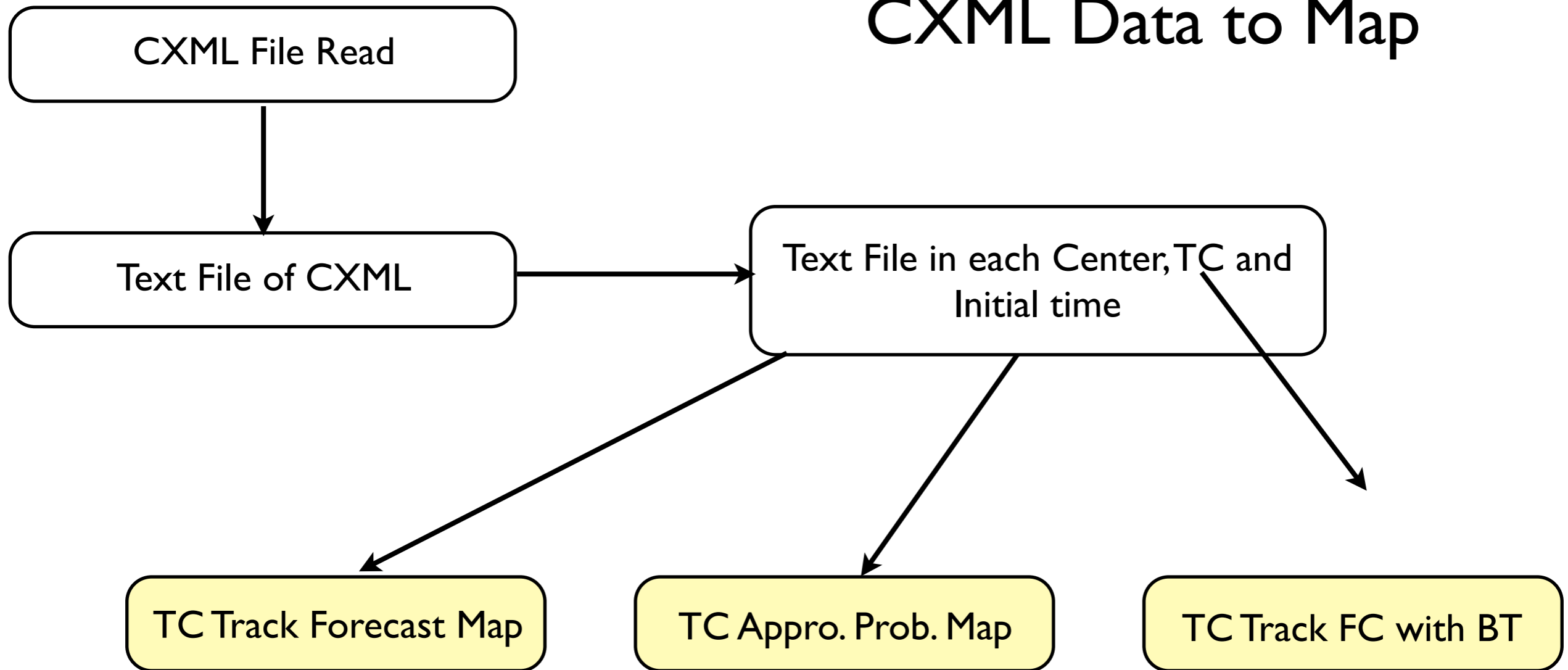
“Better City, Better Life”

May 1 - Oct. 31 2010

- The world's 3rd largest international event in terms of cultural and economic impact
- 200 Official participants
- 70 million visitors
- An average 384,000 a day!

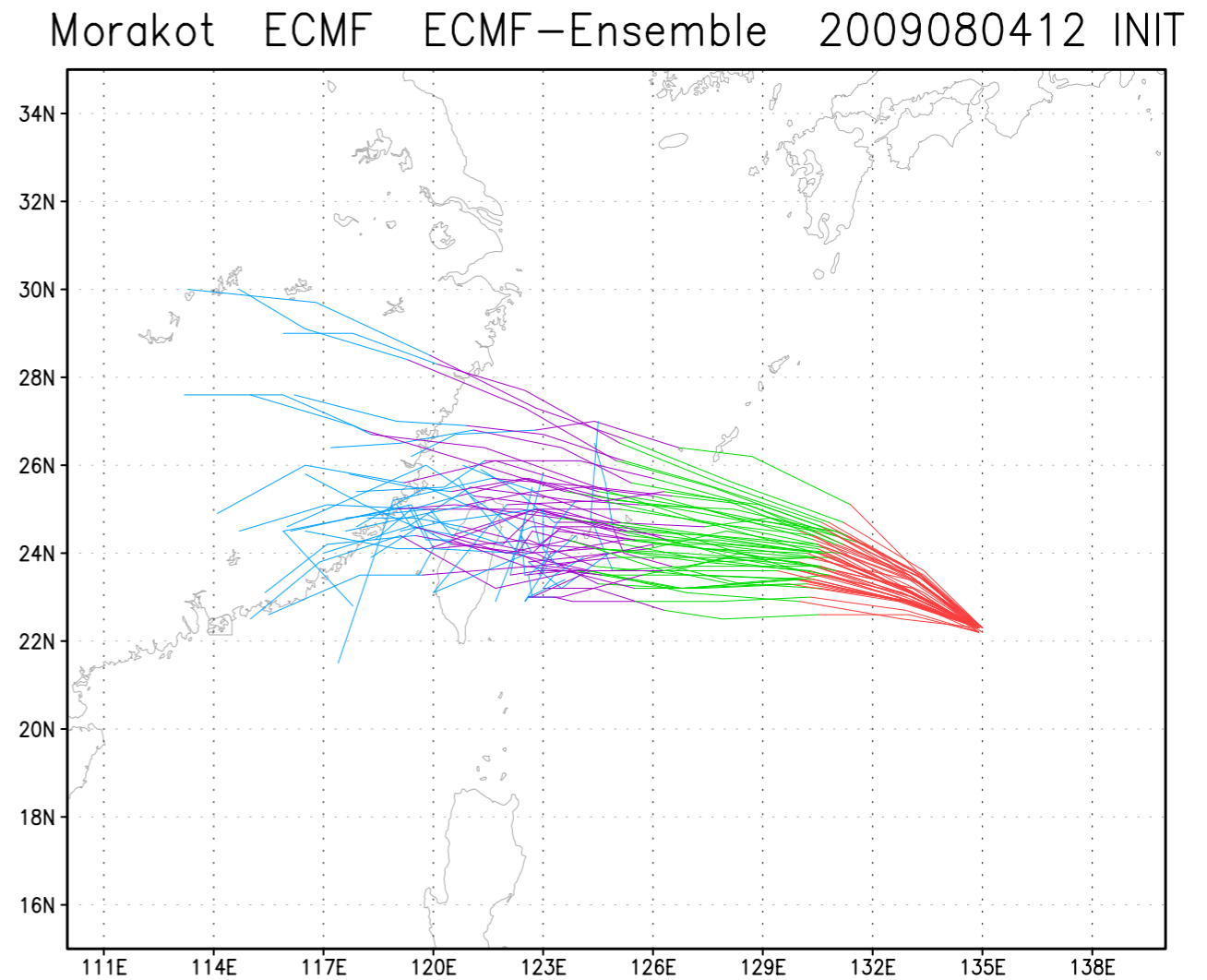
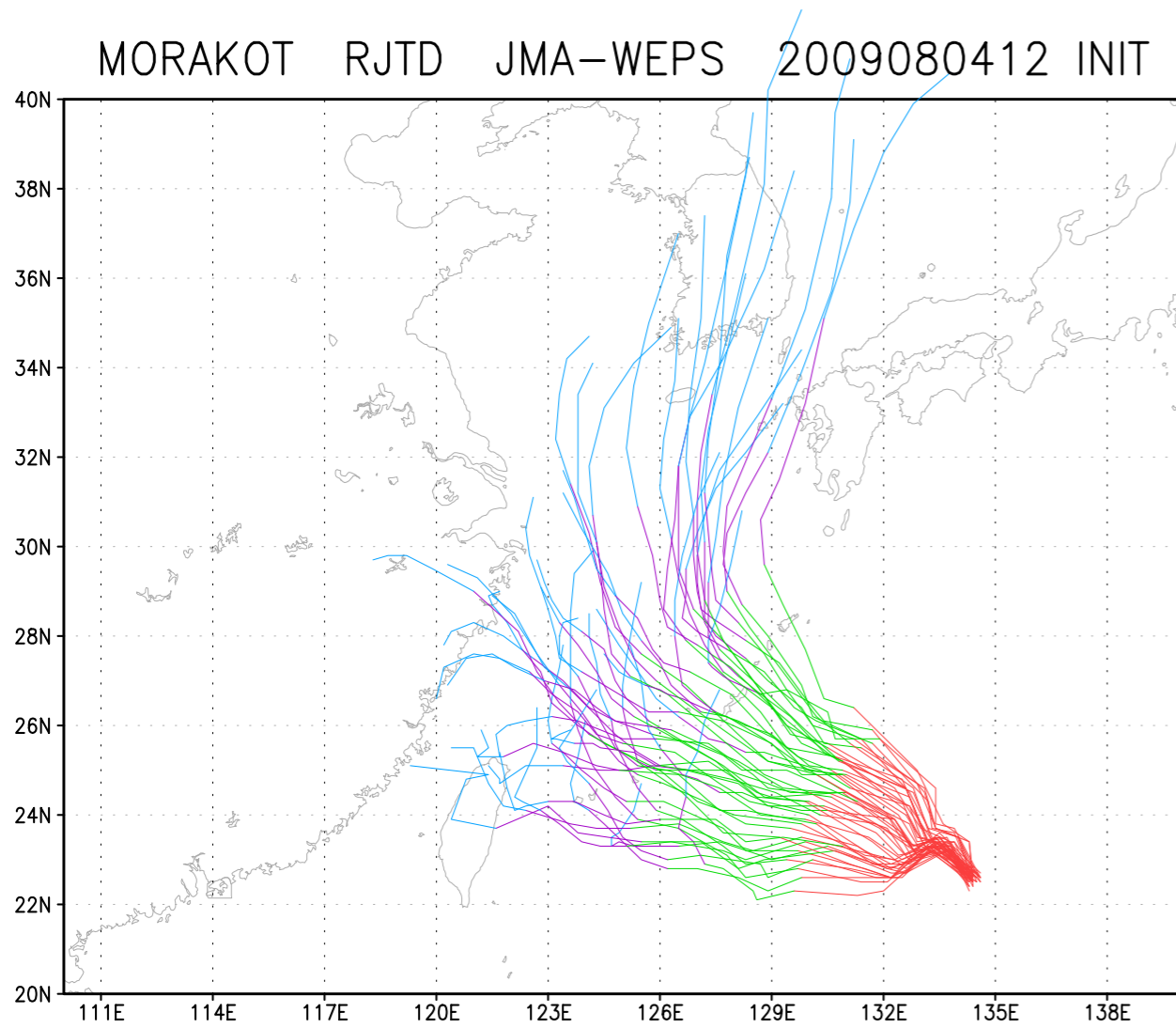


CXML Data to Map



Drawing Area?	in Each Center, Initial Time	Best Track for verification
Max FC hours?	All members up to 5 days	
	Time Series at large cities	

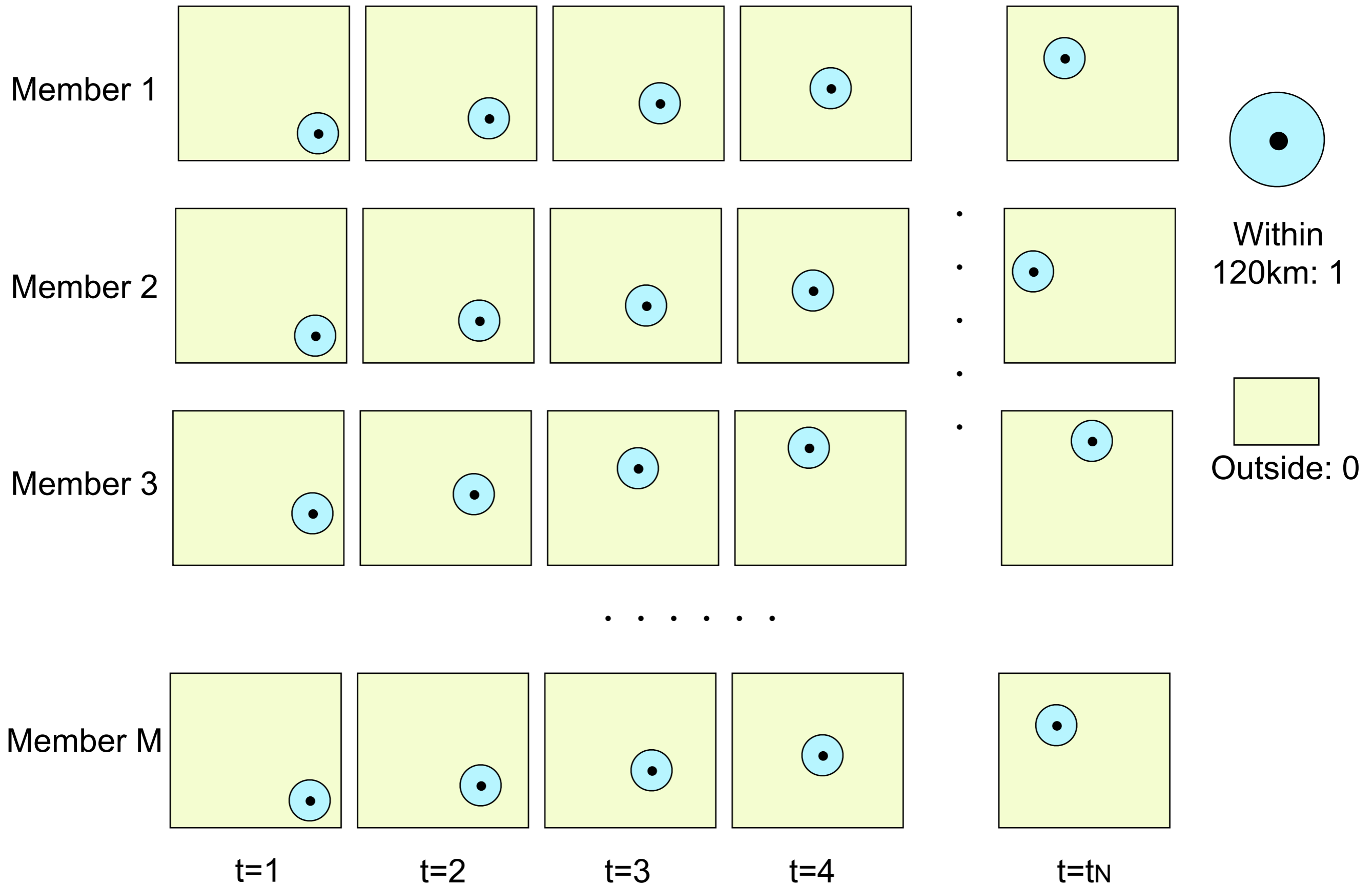
Ensemble Track Forecast for Morakot



JMA-WEPS

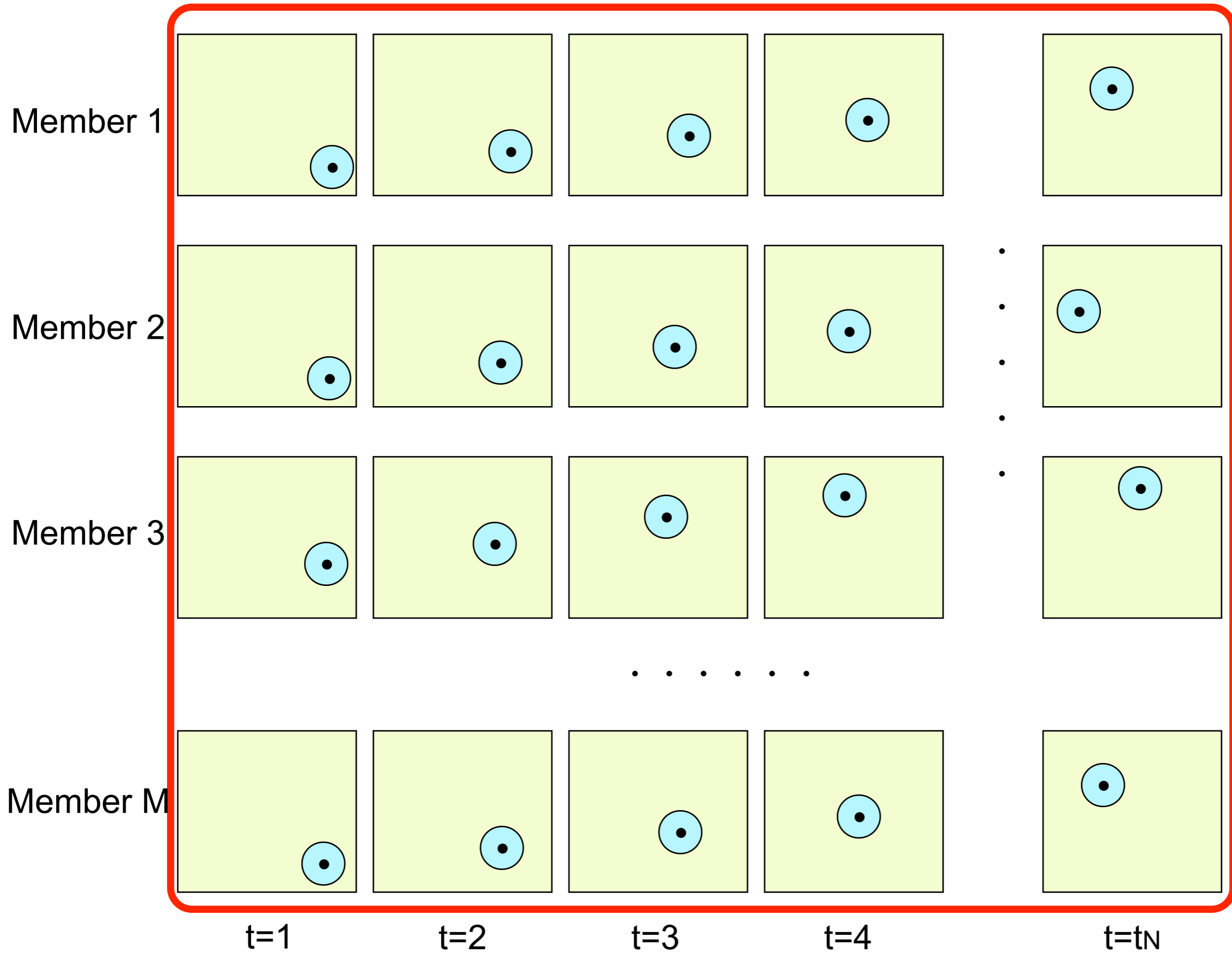
ECMWF

Probability of TC Approach

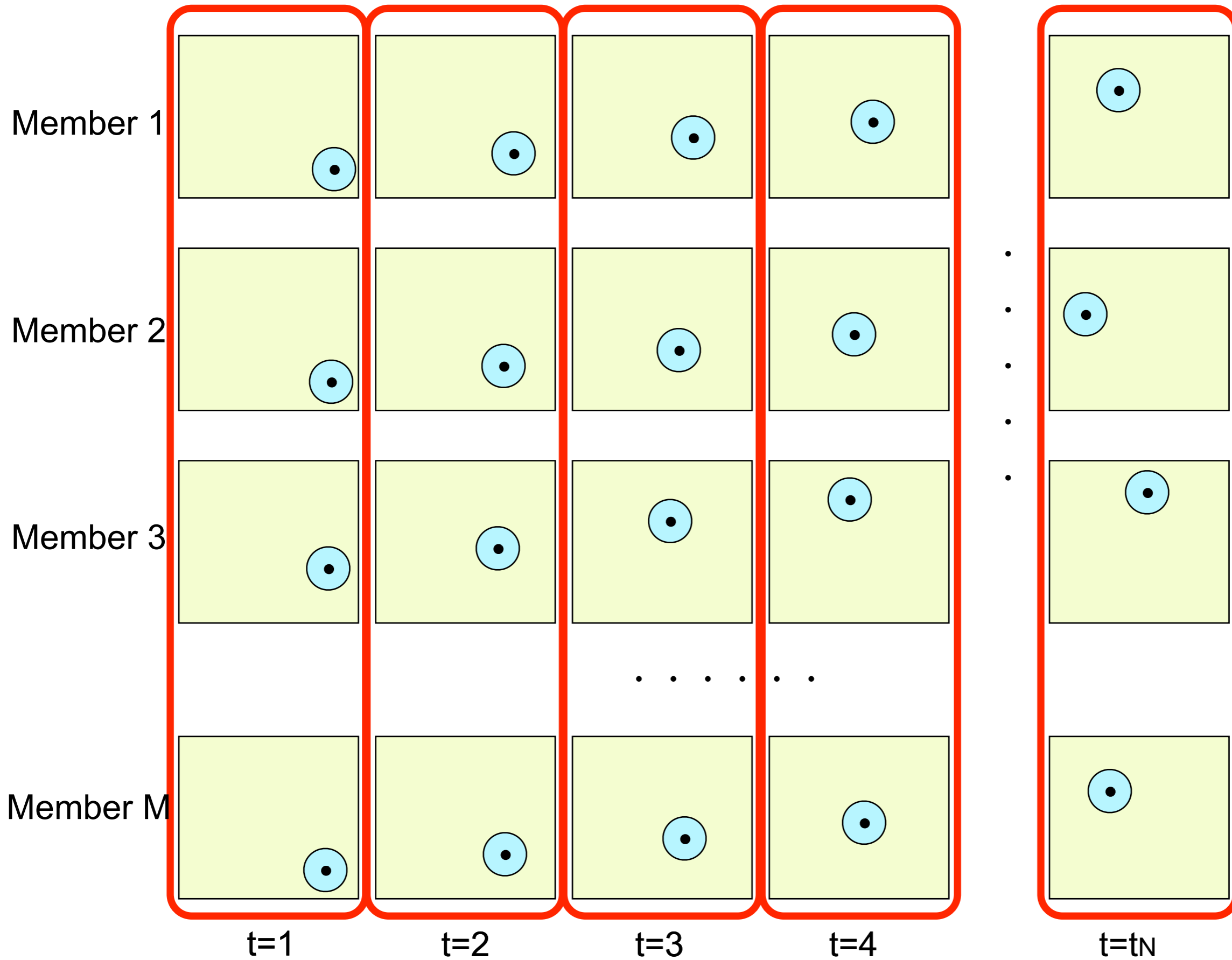


Probability of TC Approach 1

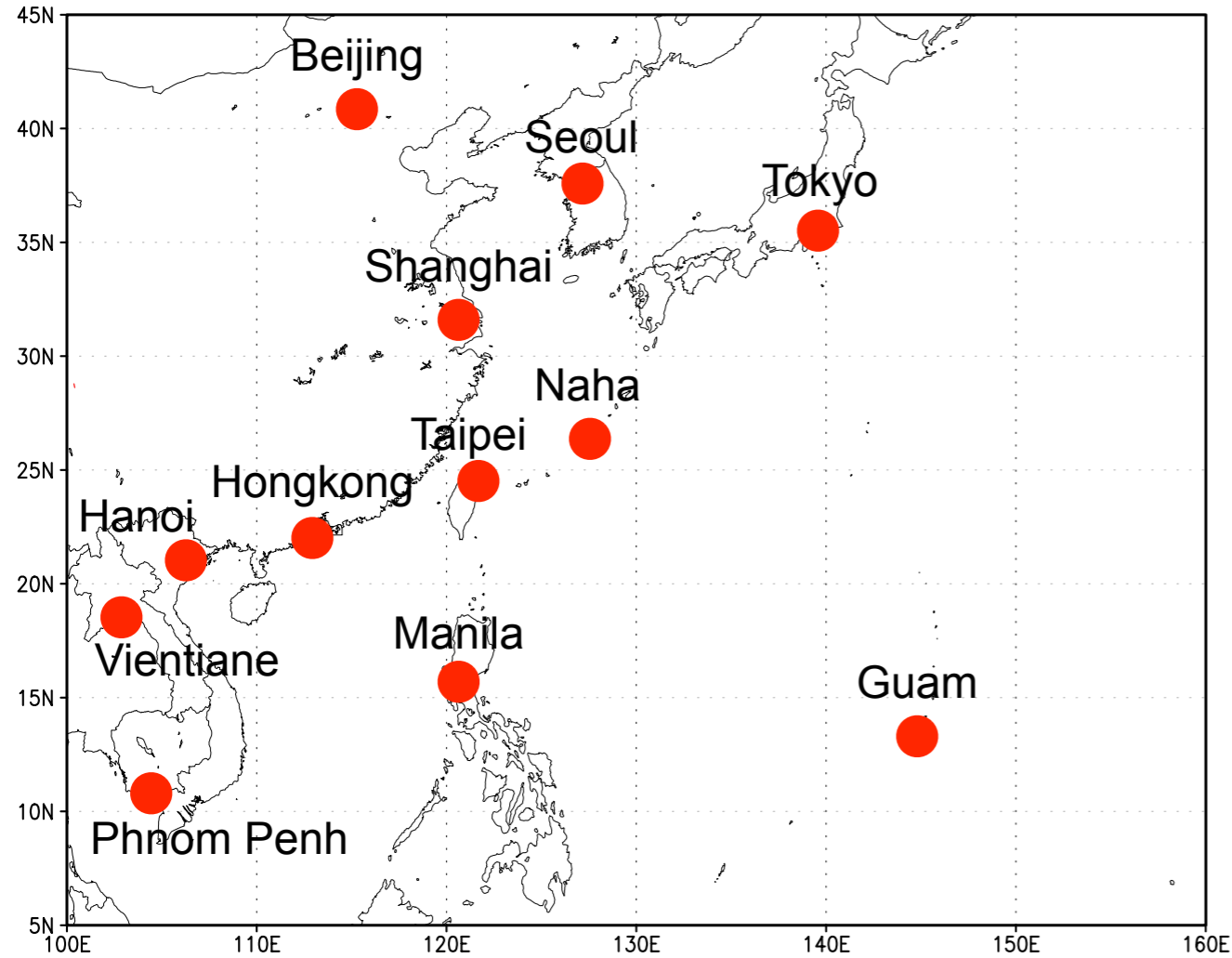
All Members ,t=1-tN Sum



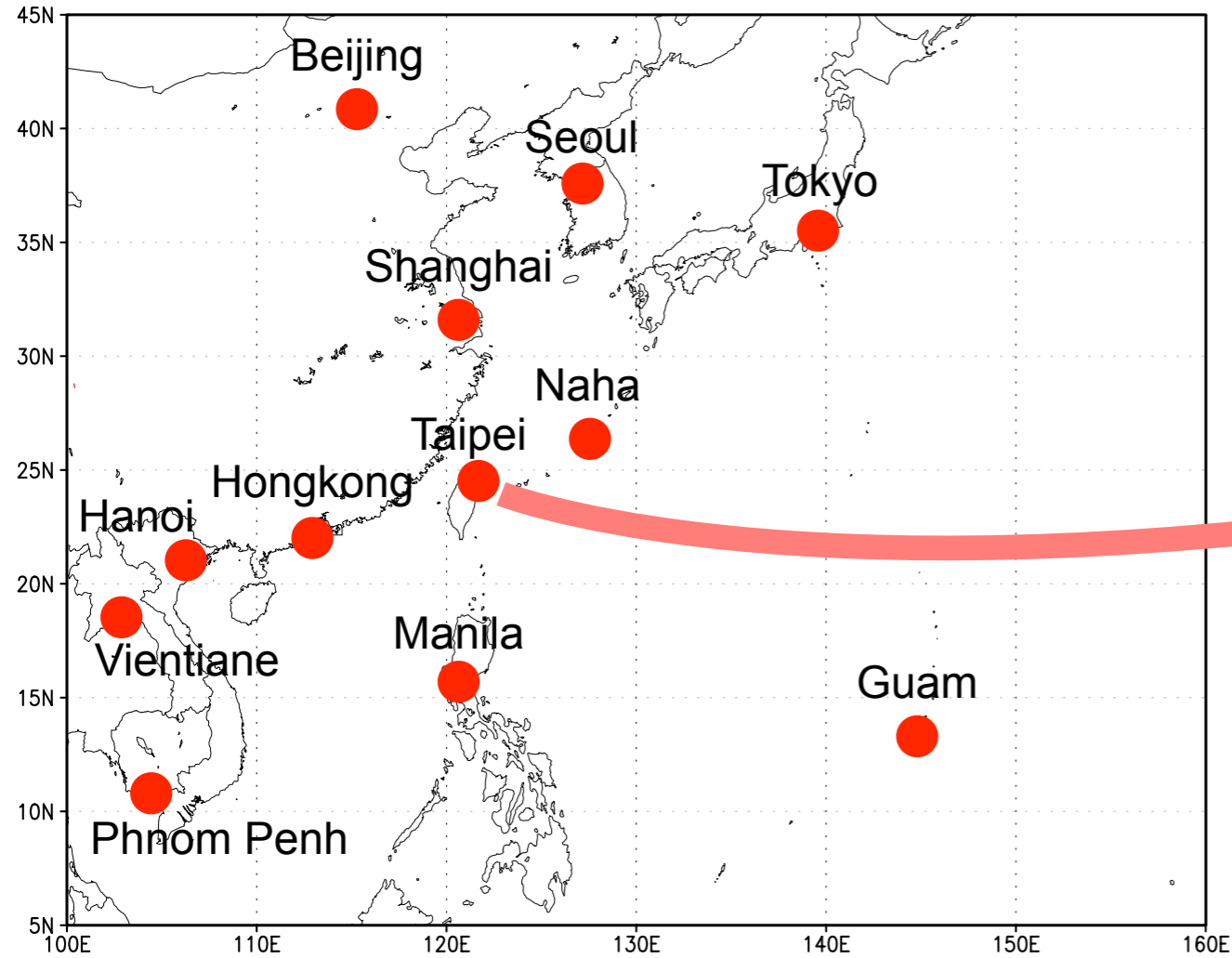
Probability of TC Approach 2 All Members, each time



Probability of TC Approach 3 Time series at Cities

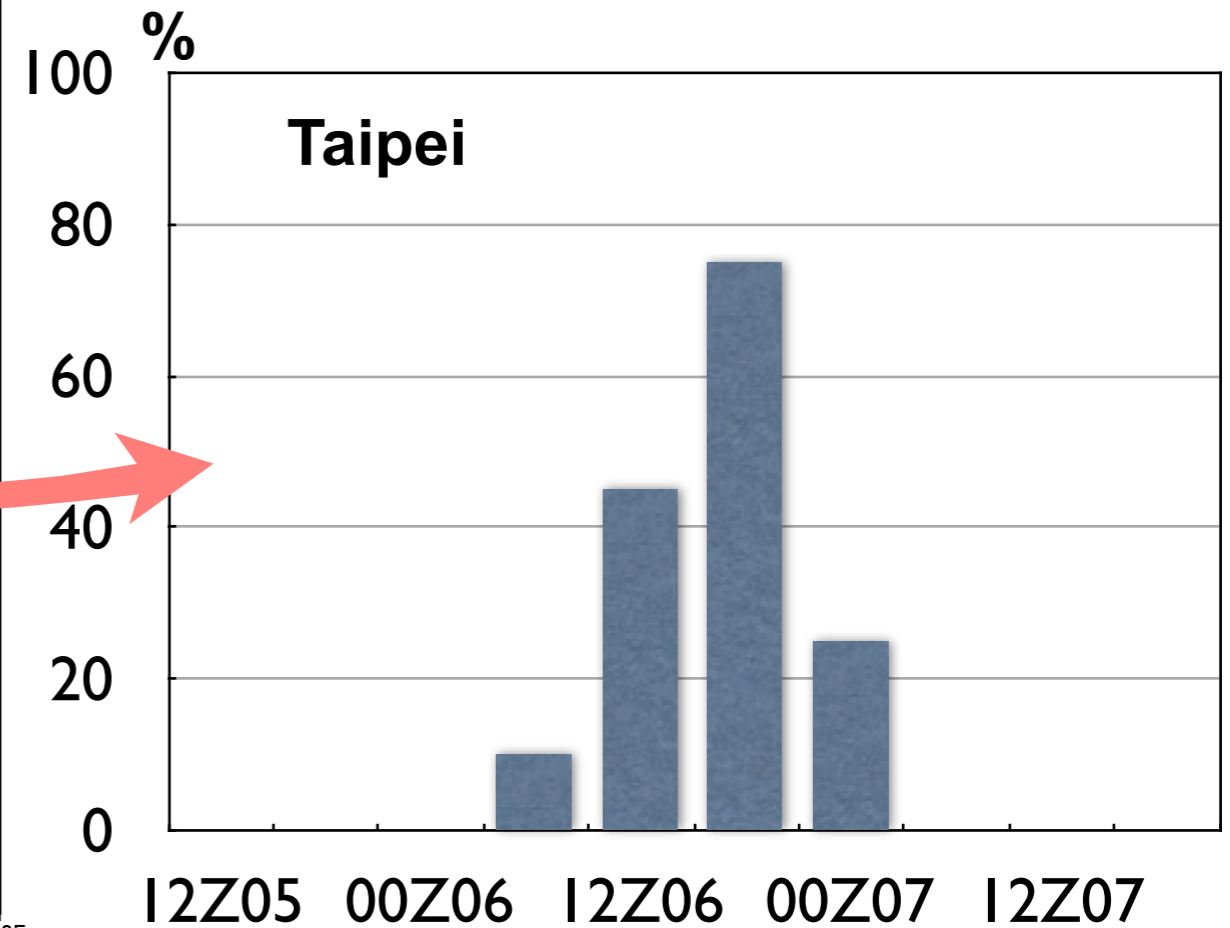
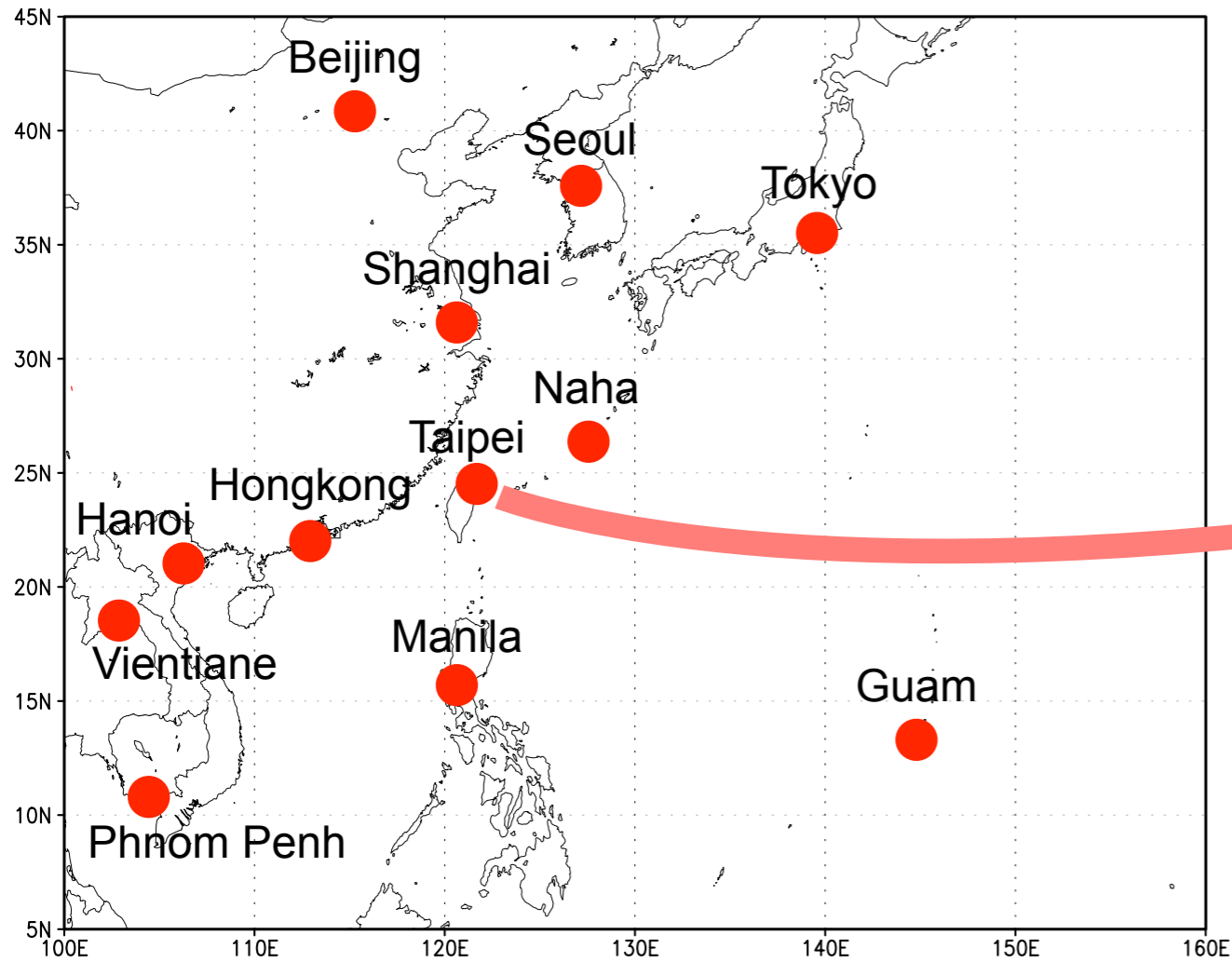


Probability of TC Approach 3 Time series at Cities



Probability of TC Approach 3

Time series at Cities



TIGGE CXML Data Availability

Provider	Analysis	Deterministic	Ensemble
CMA		※3	○
MSC	※1	○	○
KMA		※3	○
STI	※1		○
UKMO		※3	○
JMA	○	○	○
NCEP	※1	○	○
ECMWF	○※2	○※2	○※2

※1 Analysis at t=0 of Det. or Ens.?

※3 Available upon request

※2 All 3 data in a single file

RSMC Tokyo delivers the deterministic data of BoM and DWD to Typhoon Committee Members

(Courtesy of E. Ebert)

TIGGE CXML Ensemble Data

Provider	Fix	MSLP	Max. S. Wind
CMA	<input type="radio"/>	<input type="radio"/>	
MSC	<input type="radio"/>	<input type="radio"/>	
KMA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
STI	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
UKMO	<input type="radio"/>		
JMA	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
NCEP	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ECMWF	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

TIGGE CXML Data Accessibility

Provider	ftp site	user id	pw
CMA	ftp://tgftpusr:tigge@tigge-cma-ncar.cma.gov.cn/	anonymous	
MSC	ftp.emc.ncep.noaa.gov/gmb.rwobus/tigge.beta/cxml/	anonymous	
KMA	ftp://cxml:cxml@210.107.255.35	anonymous	
STI	ftp.typhoon.gov.cn	○	○
UKMO	ftp.metoffice.gov.uk	○	○
JMA	(http://tparc.mri-jma.go.jp)	○	○
NCEP	ftp.emc.ncep.noaa.gov/gmb.rwobus/tigge.beta/cxml/	anonymous	
ECMWF	ftp://tigge:tigge@tigge-ldm.ecmsf.int/cxml/	anonymous	

Future Scope of the Project.....

Extreme Forecast Index (EFI) Approach in ECMWF

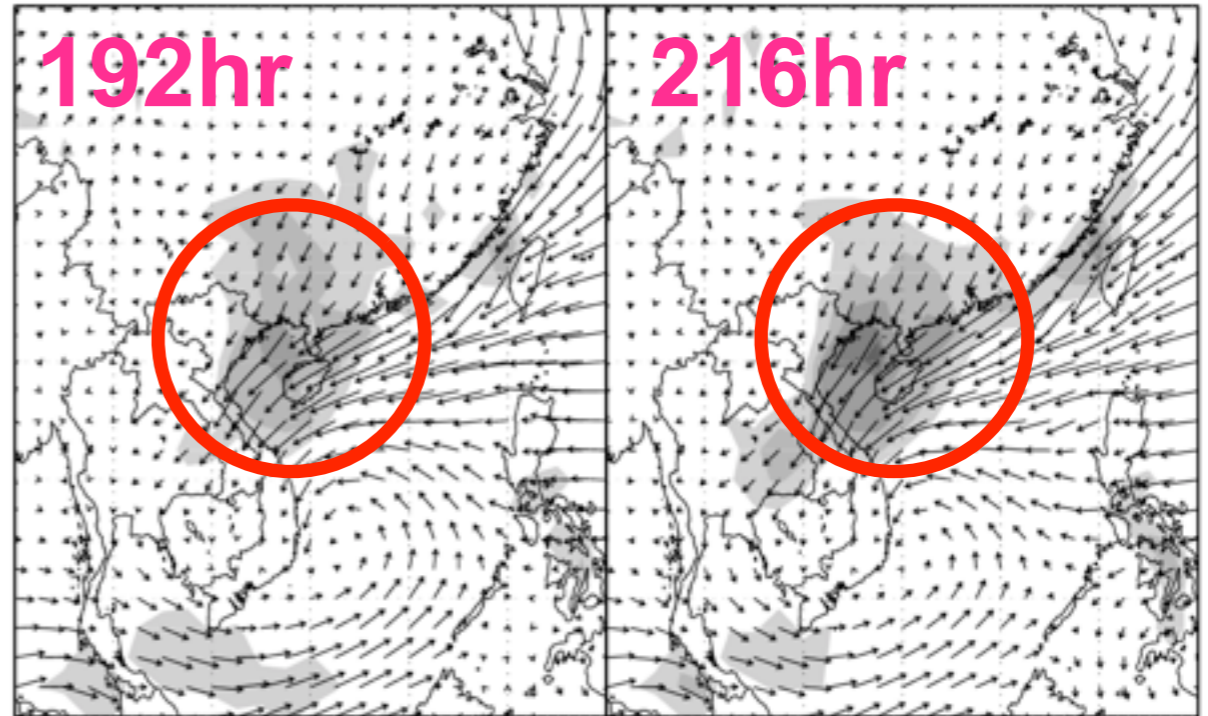
- Warning of Flood Potential

Vietnam Flood in Oct. 2008

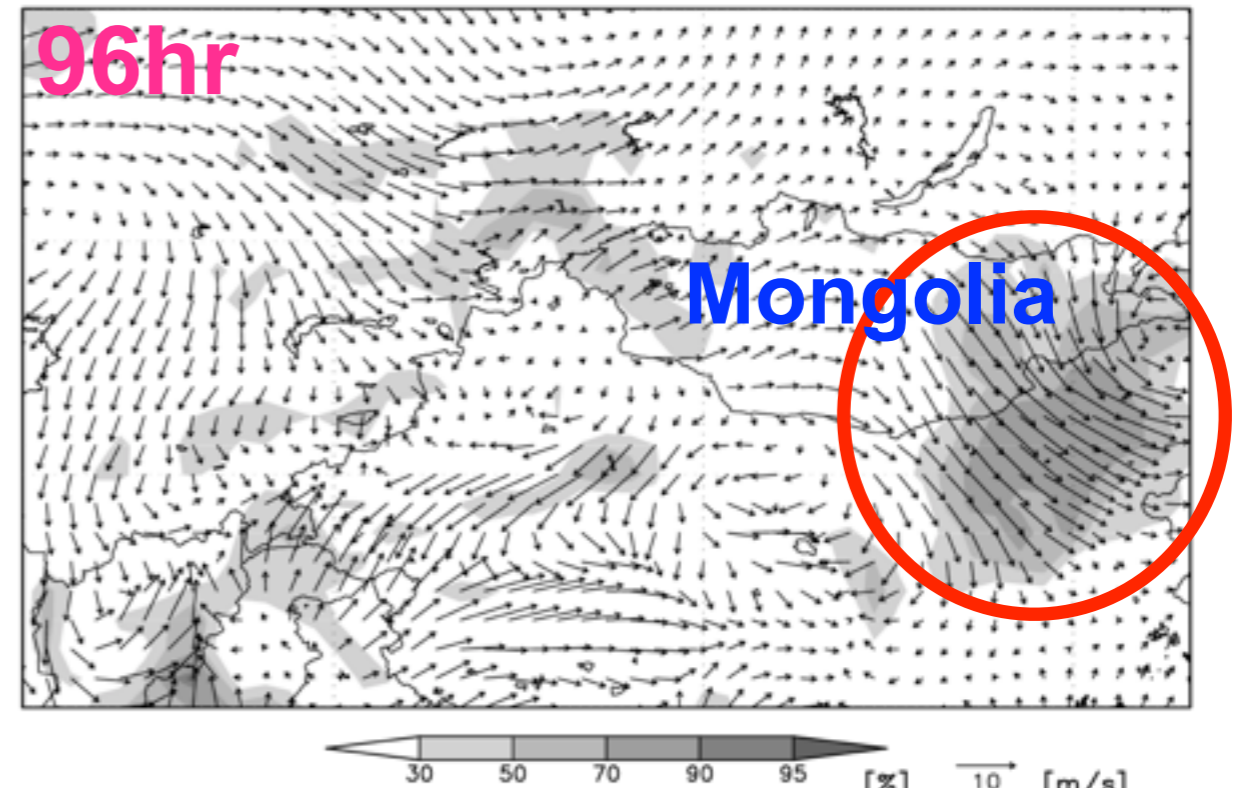
- Warning of Sand/Dust Storm Potential

Gobi Storm in Mar. 2007

Probability of surface wind speed over 90 percentile (MCGE)
Initial: 2008102312UTC
+192hr +216hr



Probability of surface wind speed over 95 percentile (MCGE)
Valid time: 2007032612UTC +096hr



Summary

- A WMO/WWRP Forecast Demonstration Project, North Western Pacific Tropical Cyclone Ensemble Forecast Research Project, will deliver the information in real-time to ESCAP/WMP Typhoon Committee members and interested researchers over the globe, based on the TIGGE Tropical Cyclone CXML data.
- First track data, then intensity/precipitation data
- The web page, required ID and password, will be available in May 2010, after the permission of the real-time use of the data from the TIGGE WG.
- Training activities for forecasters should be included.
- Verification research activities with Joint WG on Forecast Verification Research under WWRP/WGNE