

# IMILAST – Intercomparison Protocol

(Version 15-Oct-2012)

The intercomparison experiment envisages that each group will apply its own method to each of four predefined data sets. Each of these datasets will have its own resolution and time periods. For each time-space resolution combination, each group must retain the same threshold settings, for its own method, and these settings will be quoted.

The output will in all cases consist of all individual cyclone tracks, described by a cyclone identifier, a sequence of positions (time, latitude, longitude) and the intensity as calculated by the method (metric as used, not prescribed).

Subsequent inter-comparison activities will be performed by individuals or by groups using tracking output amalgamated from all methods in the common format. If several groups analyse the same region, boundaries of the region will be defined beforehand. This allows us to also compare differences in interpretation arising from differences in the ways the common tracking output has been post-processed.

## Input data sets:

**Data set 1.** ERA interim, 1.5°/6h, 01-Jan-1989 – 31-Mar-2009

**Data set 2 (low priority).** ERA interim, 0.75°/6h, 01-Jan-1990 – 31-Mar-1990

**Data set 3.** ERA interim, 0.75°/6h, specific storms

(the first date denotes the time of the main windstorm event, though damaging winds may have occurred either side of this. Then the date/time interval for each storm denotes the period during which objective cyclone tracking is performed – this does not mean that the storm was identifiable for the *whole* of this period, but conversely there may also be instances where the true life-cycle extended beyond the period shown).

a) Daria	25-01-1990,	Germany+	19/1/90	00UTC	-	28/1/90	18UTC
b) Vivian	26-02-1990,	Germany+	20/2/90	00UTC	-	1/3/90	18UTC
c) Magda 2	9-12-1992,	AquaAlta	3/12/92	00UTC	-	12/12/92	18UTC
d) Lili	28-10-96,	UK	22/10/96	00UTC	-	31/10/96	18UTC
e) Yuma	24-12-97,	UK	18/12/97	00UTC	-	27/12/97	18UTC
f) Anatol	3-12-99,	Denmark	27/11/99	00UTC	-	6/12/99	18UTC
g) Lothar	26-12-99,	France+..	20/12/99	00UTC	-	29/12/99	18UTC
h) Martin	28-12-99,	France	22/12/99	00UTC	-	31/12/99	18UTC
i) Oratio	30-10-00,	UK+	24/10/00	00UTC	-	2/11/00	18UTC
j) Torsten	11-11-01,	Algeria,Balearics	5/11/01	00UTC	-	14/11/01	18UTC
k) Jeanett	27-10-02,	Germany+	21/10/02	00UTC	-	30/10/02	18UTC
l) Quimburga	19-11-04,	Slovakia+	13/11/04	00UTC	-	22/11/04	18UTC
m) Dagmar	17-12-04,	France	11/12/04	00UTC	-	20/12/04	18UTC
n) Erwin	08-01-05,	Sweden+	2/1/05	00UTC	-	11/1/05	18UTC
o) Gordon	20-09-06,	Ireland	14/9/06	00UTC	-	23/9/06	18UTC
p) Renate	03-10-06,	France	27/9/06	00UTC	-	6/10/06	18UTC
q) Kyrill	18-01-07,	Germany+	12/1/07	00UTC	-	21/1/07	18UTC
r) Paula	25-01-08,	NEurope	19/1/08	00UTC	-	28/1/08	18UTC
s) Klaus	24-01-09,	France+	18/1/09	00UTC	-	27/1/09	18UTC
t) Xola	23-12-09,	Portugal,	17/12/09	00UTC	-	26/12/09	18UTC
u) Xynthia	28-2-10,	France+,	23/2/10	00UTC	-	4/2/10	18UTC
v) Ulli	03-01-12,	Scotland+,	30/12/11	00UTC	-	8/01/12	18UTC

## Region:

Northern Hemisphere (Datasets 1-3), 20°-90°N

Southern Hemisphere (Dataset 1 only), 20°-90°S

## Source of data sets:

**Set 1:** freely available from [http://data-portal.ecmwf.int/data/d/interim\\_daily/](http://data-portal.ecmwf.int/data/d/interim_daily/) and links.

Data set information: "step" (0,3,6,9...) in the web robotics relates to the forecast lead time, which is appropriate for some ERA-Interim variables like precipitation totals, which are not available at T+0. For our purposes however all that we require should, I think, be available at T+0. So for the IMILAST project T+0 is I think the only step that we should all be using.

If selecting a step via the radio buttons on the web interface please notice that some of the variables in the list below are blanked out - this is intended to indicate what is and is not available for different leads.

**Set 2/3:** freely available from [http://data-portal.ecmwf.int/data/d/interim\\_full\\_daily/levtype=pl/](http://data-portal.ecmwf.int/data/d/interim_full_daily/levtype=pl/)

(note also options for eg surface data on the left of the page. By default you should now get the full resolution data (i.e. ~0.75 degrees)

## Input parameter:

'Surface': MSLP, 10m wind U and V components,  
Pressure levels: 1000, 925, 850, 700, 500, 250hPa  
Variables on pressure levels: Height,T,u,v,q  
850hPa vorticity

## Output parameter:

For all data sets: complete individual tracks  
Cyclone identified, time, latitude, longitude, first/second/third intensity (whatever metric is used), free additional parameters

## Data format:

Hemispheres separately, whole time period in one data set

The output file consists of a header line starting with code '99' containing some information on the method:

99 Code,CycloneNo,StepNo,DateI10,Year,Month,Day,Time,LongE,LatN,Intensity1,Intensity2,Intensity3  
(for 'Intensity1..3' insert the corresponding metric, e.g. Z1000, SLP, etc.)

followed by a sequence of records of individual cyclones, with a header line containing code '90', the number of the cyclone, and the number of steps, followed by a sequence of lines **with fixed variable length** as follows:

```
90 NNNNNN SSS
CC NNNNNN 001 YYYYMMDDHH YYYY MM DD HH LONGITU LATITUD 11111111 22222222 33333333
CC NNNNNN 002 YYYYMMDDHH YYYY MM DD HH LONGITU LATITUD 11111111 22222222 33333333
CC NNNNNN 003 YYYYMMDDHH YYYY MM DD HH LONGITU LATITUD 11111111 22222222 33333333
...
CC NNNNNN SSS YYYYMMDDHH YYYY MM DD HH LONGITU LATITUD 11111111 22222222 33333333
```

where:

C: Method code

N: Cyclone number

S: Step number

Y: Year

M: Month

D: Day

H: Hour

LONGITU: Longitude **-180 to +180 E** (W: negative), two decimal places

LATITUD: Latitude N (S: negative), two decimal places

1: Intensity 1 (most often used intensity measure of the method)

2: Intensity 2 (second most often used intensity measure of the method)

3: Intensity 3 (third most often used intensity measure of the method)

Missing values: -999.99

fixed variable length

**Method codes:**

01: Olga Zolina, Bonn  
02: Joaquim Pinto, Köln; Uwe Ulbrich, Berlin; Gregor Leckebusch, Birmingham  
03: Rasmus Benestad, Oslo  
04: Tomek Trzeciak, Leeds  
05: Lan Xia, Geesthacht  
06: Tim Hewson, Reading  
07:  
08: Margarida Liberato, Lisbon  
09: Xiaolan Wang, Toronto (code developed by Mark Serreze, Colorado)  
10: Ian Simmonds, Melbourne  
11:  
12: Sergey Gulev, Moscow  
13: John Hanley, Dublin  
14: Sarah Kew, De Bilt  
15: Christoph Raible, Bern; Richard Blender, Hamburg  
16: Piero Lionello, Lecce  
17: Kevin Hodges, Reading  
18: Mark Sinclair, Prescott  
19:  
20: Heini Wernli, Mainz  
21: Masaru Inatsu, Hokkaido  
22: Mirseid Akperov, Moscow  
23: Madleine-Sophie Déroche, Paris

90: Cyclone header line  
99: File header line

**Schedule:**

Upload output files as soon as possible.

**Data sever:**

Address distributed by separate Mail (27 July 2009), or mail to [urs.neu@scnat.ch](mailto:urs.neu@scnat.ch)

**Standardizations****for data sets 1 and 2:**

- Lifetime threshold: include cyclones living 24 hours or more
- for terrain height restrictions: use ERA-interim orography (can be downloaded from IMILAST server)

**for data set 3:**

none