More information is available at:
tigge.ecmwf.int/lam

Contacts:
richard.mladek@ecmwf.int
tpaccagnella@arpa.emr.it

WMO OMM — WWRP WORLD WEATHER RESEARCH PROGRAMME — THORPEX A World Weather Research Programme — ECMWF — TIGGE — GEOWOW — arpa

The TIGGE LAM archive at ECMWF

Richard Mládek, Baudouin Raoult, Manuel Fuentes, David Richardson, Shahram Najm, Ervin Zsótér, Florian Pappenberger,   ECMWF, UK

Tiziana Paccagnella,   ARPA-SIMC, Italy
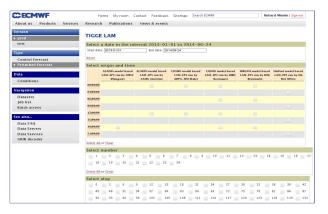
Richard Swinbank,   Met Office, UK

TIGGE-LAM is part of the weather contribution to the GEO System of Systems (GEOSS) and it is accessible through the GEO Common Infrastructure (GCI).

The European TIGGE-LAM archive has been implemented at ECMWF as part of the GEOWOW project (co-funded under the European Community's Seventh Framework Programme FP7/2007-2013). The effort has been coordinated with the THORPEX TIGGE-LAM Panel (http://www.smr.arpa.emr.it/tiggelam) and GIFS-TIGGE Working Group.

The TIGGE-LAM archive can be considered as an extension of the global TIGGE archive to include output from European limited-area ensemble prediction systems. The TIGGE archive, established in 2006, comprises global ensemble prediction data from ten weather prediction centres. The TIGGE and TIGGE-LAM data are made available to support research, with particular emphasis on predictability, study of dynamical processes and the development of probabilistic forecasting methods.

TIGGE-LAM Portal

The TIGGE-LAM data are available for scientific research (with a 48-hour delay) after a simple electronic registration process.

The TIGGE-LAM web data portal available at http://apps.ecmwf.int/datasets/data/tigge_lam/

TIGGE-LAM archive tools

All TIGGE-LAM data must follow exact rules for data encoding which were originally established for the TIGGE global archive. The aim is to achieve homogeneous and user friendly datasets with minimum gaps caused by technical or any other problems. To ensure archive consistency various routine operations are performed on the TIGGE-LAM data to check data quality and monitor the data availability.

The TIGGE-LAM archive:

- enables users to have easy access to all the European LAM EPS products;

- supports research on the prediction of High Impact Weather using LAM EPS;

- allows the comparison and combination of different ensembles;

- facilitates the definition of guidelines to implement new Ensemble Prediction Systems;

- supports research on the development of new ensemble methodologies;

TIGGE LAM cooperating Data Providers

SYSTEM	PROVIDER
AEMET-SREPS	AEMET, Spain
ALADIN-LAEF	ZAMG, Austria
COSMO-DE-EPS	DWD, Germany
COSMO-LEPS	ARPA-SIMC, Italy (for COSMO)
DMI-HIRLAM	DMI, Denmark
GLAMEPS	DMI, Denmark (for HIRLAM and Aladin)
HUNEPS	OMSZ, Hungary
MOGREPS-UK	Met Office, United Kingdom
PEARP	Météo-France
SRNWP-PEPS	DWD, Germany (for SRNWP)

TIGGE-LAM was launched at a conference at WMO Headquarters on 19 March 2014.

From left to right:

Tiziana Paccagnella, Chair of the TIGGE-LAM Panel, ARPA-ER SIMC , Italy

Richard Swinbank, Co-chair of the WMO GIFS TIGGE WG, Met Office

David Richardson, Head of Evaluation, ECMWF

Barbara Ryan, Director of the intergovernmetal Group on Earth Observation (GEO)

Jim Caughey, WMO Consultant, THORPEX for GEO.

TIGGE-LAM data specification

Data specification:

- Archival data format: WMO-GRIB2
- Time step frequency: model outputs every three hours
- Archival grid: data is archived on original model grids
- Archived parameters: during the first stage of the TIGGE-LAM project to store only "high-priority" parameters

Parameters in the TIGGE-LAM archive:

- Mean sea level pressure
- 10m U-velocity
- 10m V-velocity
- Wind speed (gust)
- Surface air temperature
- Surface air dew point temperature
- Total precipitation (liquid + frozen)
- Large scale precipitation
- Convective available potential energy
- Convective inhibition
- Orography (geopotential height at the surface)
- Land-sea mask

TIGGE LAM time series at specific locations

A prototype of a time-series archive has been developed to improve accessibility of TIGGE/TIGGE-LAM to efficiently access long time series of forecast data at specific geographical locations. Time series will be available for synop stations and selected other locations defined for specific purposes.

The Future

The TIGGE LAM archive will continue to be maintained at ECMWF, together with the TIGGE global archive, after the end of THORPEX and GEOWOW.

It is intended that the TIGGE-LAM archive - including the infrastructure, software tools and content - will continue to be developed. The extent of the developments will obviously depend on the availability of funding and resources.
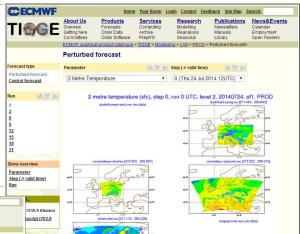
New parameters will be added to the archive to support WMO-endorsed scientific projects, including the HI Weather (High Impact Weather) THORPEX Legacy project that is now under development.
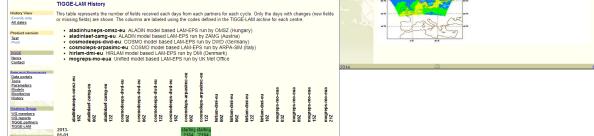
New datasets could also be added in the future to include project datasets or severe/high impact weather event datasets.

The developed infrastructure will now be used also by other research projects such as S2S (Sub-seasonal to seasonal prediction project), and UERRA (Uncertainties in Ensembles of Regional ReAnalyses).

Scientific issues related to ensemble forecasting, both at global and regional scales, are rapidly evolving. Some of these issues are discussed in the TIGGE LAM plan available from the THORPEX website www.wmo.int/thorpex