

GIFS/TIGGE WG 6<sup>th</sup> MEETING ACTION ITEMS  
Updated Sep 26 08

**Actions from Mar 08 meeting**

1 Information on generation procedures for TIGGE global ensemble metadata:

- a) Agree on information content - Z. T. coordinates with Ken Mylne, circulate to WG members before it is finalized (K.Mylne, Z.Toth, Apr. 15,)
  - b) Study WIS-compliance aspects and related costs, study xml; set up xml template if appropriate, recommend other format otherwise (B. Ebert, W. Almeida, possibly with some help from ECMWF, Apr 30)
  - c) Producing centers prepare info sheet in table format (marked with implementation date), post this on their web site, send url info to TIGGE webmaster(s) (All producing centers, May 31,)
  - d) TIGGE web master(s) create links to producing center url's (TIGGE webmaster(s), June 30)
  - e) Producing centers add new table every time their system is changed; old tables are to be kept on web for reference (All producing centers, ongoing)
  - f) Finish by mid Oct , send to 3 archive centers web link with file
- 2 TIGGE-LAM subgroup to strengthen links with THORPEX Regional Committees (Sep 2008, T. Paccagnella).

Contact made, no specific feedback

TIGGE-LAM group to conduct a precise survey of LAM-EPS groups

interested in IC/BC in pressure levels in real-time (T.Paccagnella, Sep 2008)

Efforts made, not all contacts respond; full resolution preferred for BC

- 3 Regarding EC0-1 from THORPEX EC Febr. 7, 2008 meeting: TIGGE / GIFS WG finds the representation of THORPEX WGs and Regional Committees insufficient with only one co-chair from all WGs and RCs on the EC. This may not allow efficient information exchange between ICSC meeting. A co-chair from each WG and RC would provide much better representation. Note that most EC business could possibly be done via e-mail (co-chairs of TIGGE/GIFS WG will report on this to ICSC, Nov 2008)
- 4 Barbara Brown and Tom Hamill to be moved to SERA & DAOS WGs as recommended by March 2007 TIGGE / GIFS WG meeting (co-chairs report to ICSC, Nov 2008). L. Wilson to represent TIGGE at SERA meetings (co-chairs, IPO)

other WGs to be formally notified by THORPEX IPO

- 5 Even though SERA WG assumed wider role, we request that for proper collaboration with THORPEX WG, their activities, membership, etc be listed as before under THORPEX in reports etc (ZT report to IPO, Mar. 2008)

- 6 Collect information on usage of TIGGE Phase-1 archive from the three archive centers, share info with WG members (Steve Worley, Sep 2008) Not done, delayed until NCAR phase 1 was complete and now need some more time to see if usages increase. CMA was not contacted. Expect ECMWF represents a majority of usage at this point. Carry over objective into '09.

Asking for end of Oct if possible

- 7 Advertise TIGGE web forum accessible from NCAR archive site, add links to the forum from other TIGGE access sites (Steve Worley, May 2008)

Done – WG was cc'd and reinvited to join the TUG. We placed several NCAR announcements there. Not much activity- very few threads of communication.

WG needs to start this going

- 8 Invite a WIS expert to next TIGGE / GIFS WG meeting (co-chairs, IPO, Sep 2008)
- 9 Consider addition of new records into TIGGE Phase-1 data exchange/archive (in format similar to existing variables) depending on more concrete requests from TIGGE-LAM subgroup and PDP WG. For example NWP experiments need more complete information on IC (on continual basis; JMA request, MUMMA-type research) and BC (for preselected periods, ~30 days per year, TIGGE-LAM support) facilitating ensemble experiments (Y. Takeuchi / C. Bishop consult with PDP WG)

Dr Sato pursue this

, T. Paccagnella consult with TIGGE-LAM subgroup to develop list of added variables – May 31; producing centers / archive centers consider including additional variables, not to exceed a total of 10% increase in data volume per year – Nov 2008).

Tiggelam discussion deferred

- 10 GRIB2 precip encoding/decoding problem noted by JMA; detailed description of problem to be sent to archive centers (Y. Takeuchi, Apr 2008)

No problem

- 11 ECMWF web page expanded with list of TIGGE-related publications (P. Bougeault, May 31)

done

- 12 Explore what observational data readily accessible through NCAR, NCDC/NOAA and possibly other web sites may be relevant for TIGGE verification efforts; add useful information to TIGGE-related web sites (Laurie Wilson, June 2008)

Work though this will Laurie, did we include NCDC enough.

Possibly refine the list by asking for review and additions from NCDC?

Research done, need to discuss & put on web

13 JMA to continue and expand its WMO-sponsored verification activities following recommendations by Ensemble Expert Team. Final verification of selected upper level grids against each center's own analysis to be provided by each producing center to JMA (All producing centers, ongoing); missing statistics to be computed and posted by JMA (Y. Takeuchi, Jul 2008). JMA to consider verification of a combined, 10-center TIGGE ensemble (Y. Takeuchi, Oct 08) (verifying analysis to be selected after consultation with experts). Verifying analysis for, and verification of precipitation ensembles to be considered later

Only ecmwf sent and cptec, kma ready

14 Encourage THORPEX Regional Committees & RSMCs in use and user specific verification of TIGGE data against observations or other relevant data (co-chairs, L. Wilson, & IPO, May 2008)

keep

15 Prepare draft letter to be sent by WWRP to JMA Intl Affairs Office & KMA (and possibly other producing centers if needed) with request to provide TC data in CXML format on ftp site for research applications during TPARC. Access can be limited to registered users. Request consideration of continued access to data after T-PARC, under conditions defined by data providers (Z. Toth and IPO, April 2008)

16 Contact colleagues at CMA (Shanghai) engaged with TC forecasting to explore their interest and willingness to contribute to CXML TC data exchange (J. Gong, May 2008)

check

17 Proposed CXML format and content for real time exchange of TC (and later ETC) accepted by WG with minor changes. CMA, JMA, KMA, ECMWF, CMC (through NCEP), UKMETOFFICE, and NCEP expressed an interest and readiness to make files with TC info in cxml format available through their individual ftp sites in real time by July 2008 for TPARC (Aug-Sep 08, Jan-Mar 09), and with 48-hr delay if desired by any producing center, beyond TPARC Tracking algorithms / software voluntarily shared among centers (7 contributing centers, July 2008).. BOM & METEOFRENCE to explore possibility to contribute later.

18 Producing centers to provide ftp site and access info to B. Ebert for inclusion on CXML T-PARC & TIGGE web sites (Contributing centers, June 2008)

19 CXML proposal to be augmented by content & name of files to be made available by producing centers (Proposal by B. Ebert, 31 March, final version after consultation with all producing and archive centers, 15 April)

Name convention was not adopted across all center.

20 CPTEC expressed an interest in tracking subtropical and extratropical lows, explores use of cxml format, report on experience to cxml team,

- and in its ensemble to be processed by other parties for TC tracks (P. Silva Dias, B. Ebert, Sep 08)
- 21 NCAR, and possibly ECMWF could create cxml archive, contingent on appropriate file naming and data transmission protocols. Access / interrogation methods to archived data unclear until further specifications are given. Archiving of TC information to be explored, either at phase-1 archive center(s), and/or in distributed phase-2 framework, in conjunction with focal group addressing phase-2 archiving issues (B. Ebert, Sep 2008)
- Simple archive was established and is running now, contains all TC that have been produced. It is also backed up on the NCAR MSS.
  - Ask Philippe about real time access from ecmwf
  - Sera asks about extratropical cyclones
- 22 WG discussed Phase-2 / GIFS draft plan, including concept of real time data exchange (Phase-2) and product generation (GIFS) as new elements in TIGGE / GIFS, and agreed with general structure of plan. Content needs to be revised; revisions based on specific recommendations (eg, NCAR conditions to link their archive with future common user web interface; interactivity) to be included before document is presented to IPO & ICSC. Archiving to be discussed further at Sep 08 meeting. (Revised plan circulated to WG – Apr 30; WG feedback, May 31; Final version, June 30)
- 23 WG identified archiving of ensemble data and derived products during Phase-2 and GIFS as an area that will need further consideration and discussion. Options to consider include:
- For ensemble forecast data:
- a) Continue Phase-1 archive system (3 central locations, with identical copies of data. NCAR & ECMWF expressed a willingness and interest to continue with current archive system
  - b) Distributed archiving
    - i) Data archived by 3 centers partitioned, avoiding duplication (eg, each center collects and holds data from 3-4 different producing centers)
    - ii) Data archived by producing centers (Some expressed interest)
    - iii) Combination of (i) & (ii), ie, some centers archive their own data, while others send their data to central archives
- For derived products – first assess what needs to be archived, then:
- a) Archive at producing centers
  - b) Archive at RSMCs who use the data
  - c) Archive at data distribution centers (GISC)
  - d) Archive at TIGGE Phase-1 archive centers
  - e) Combination of above, ie, find most suitable solution for each type of data
- Prepare for discussion of archiving issues for duration of Phase-2 & GIFS at next WG meeting (Phase-2 / GIFS Planning sub-group to

- prepare discussion material for Sept WG meeting, Zoltan Toth & sub-group members, Sept 2008; WG members to report about their center's archiving interest/willingness, Sept 2008)
- 24 Continue current archiving practices at 3 centers until new arrangements are developed and accepted for data archiving,. (Reps from archiving centers, ongoing)
- 25 For detailed planning, start two focus groups for initial Phase-2 & GIFS planning with volunteers from WG members, technical experts from producing & archive centers, and invited experts on WIS etc (co-chairs, Apr 30):
- a) Real time data exchange, product generation, web interface, archiving issues
  - b) Tool box (shared development and use of algorithms/software – Mohan Ramamurthy)
- 26 Focus groups report to full WG (Sep 08 WG meeting, focus group leaders)
- 27 Start exploring real time exchange of gridded precipitation data as prototype for Phase-2 real time data exchange and GIFS product generation; coordinate with real time data exchange focal group (L. Wilson, P. Dias, Sep 2008)
- 28 After discussion, WG found YOTC data request lacks some details. Also, it is not clear how wide the potential user base of the new data would be. Further, it was not clear if for the studies foreseen, whether ensemble data would be needed or data from a single high resolution integration may be best. Also, since the generation of the data may require significant resources, it may be preferable to derive the data from special off-line integrations, as opposed to operational forecasts. Overall, the WG felt the request may be better addressed by WGNE, and suggest YOTC contact the WGNE group. (Z. Toth, March 08)
- 29 The WG briefly discussed the issue of timeliness of data access from TIGGE Phase-1 archives during demonstration projects like T-PARC. It was noted that though the normal 2-day delay for data access is waived for such periods, there is an unavoidable delay of around 36 hrs due to the transmission procedures used to transfer large amounts of data on a regular basis from the 10 producing centers to the 3 archive centers. The WG encouraged interested T-PARC participants to take advantage of the TC track/intensity information that the producing centers plan to make available in real time during T-PARC. Once Phase-2 of TIGGE is developed, real time access to ensemble data will be feasible (Z. Toth, info item for IPO, March 2008)
- 30 WG agrees to organize TIGGE workshop (or TIGGE sessions) as part of Science Symposium in March 2009. Request IPO to position TIGGE sessions in middle of meeting. Example: Tue pm: TIGGE research results (jointly organized with PDP); Wedn morning: overview of TIGGE Phase 1 (~1 hr), followed by tutorial on 3 archive centers (in poster area with 3 PCs, 1 hr), then user feedback on phase-1 (3 hrs);

- Phase-2 & GIFS plan overview, followed by discussions (3 hrs in afternoon); Thurs am: Sera applications (R. Swinbank, Y. Takeuchi, Laurie Wilson volunteered as members of organizing group, along with K. Mylne from Ensemble ET CB from PDP - ongoing; JMA appointed Mio Matsueda as member of the organizing group shortly after the meeting. The co-chairs will appoint a leader for the organizing group)
- 31 Short PR paper on TIGGE Phase-1 to be published in EOS, after NCAR upgrades to its archive in ~June (P. Bougeault, July 08)  
Published Sept. 2, took longer than expected
- 32 Longer paper with some science results to be published in BAMS (P. Bougeault, Dec 08)
- check
- 33 Presentations at meetings on TIGGE; encourage science results (PDP, SERA, etc):
- a) AMS Annual meeting Feb. 08, New Orleans (Y. Zhu)
  - b) EGU, Vienna, Apr 08, Z. Toth
  - c) AGU, Fort Lauderdale, May 08, Glenn Rutledge
  - d) EMS, Oct 08, P. Bougeault
- check
- e) Asian TIGGE / THORPEX science workshop J. Gong, Oct 08
- check
- f) AMS 09, S. Worley  
Paper submitted
  - g) Brazil, Apr 09, control theory / TIGGE. P. Dias
- check
- h) IAMAS, summer 09 R. Swinbank
- 34 Suggest to other groups the addition of links on their web pages to TIGGE archive sites (B. Ebert, June 08)
- check
- 35 TIGGE / GIFS WG wishes to participate at Geneva, Sept 22- meeting, request at least 1-2 day separate meeting (co-chairs & IPO, Mar 08)
- 36 TIGGE-LAM sub-group meeting to be organized for Geneva Sep 22-week, 1-2 days, with opportunity for sub-group to join some of TIGGE / GIFS WG discussions (T. Paccagnella, co-chairs, IPO, Mar 08)
- 37 Invite GEO user committees to co-organize and attend THORPEX Symposium and TIGGE workshop/sessions (L. Wilson, IPO, Apr 08, after time/location finalized)

#### New Actions Geneva Sep 22-26 2008

- 1 Peter Chen suggested GIFS focus on practical products, week-2 extension of forecasts, precip, temp, and consider feedback, verification, evaluation
- 2 Minor revisions to GIFS plan following WIS presentation (R. Swinbank & Z. Toth, Sept 2008)

- 3 WG benefitted from attendance of experts from other WGs & RCs, including comments on GIFS plan
- 4 Prepare review of existing extratropical cyclone tracking methods (UK Met Office, NCEP (Mike Charles), KMA; R. Swinbank leads, consults with others – Dec 08)
- 5 CXML data archived at NCAR – 12 users already without advertisement; include CXML in all future TIGGE presentations (all – continuing)
- 6 CXML used in real time at KMA, BOM, NCEP, UKMO; what is summer T-PARC use, how will winter T-PARC use it? (z. Toth, Oct 08)
- 7 CXML track combination & verification – collect info form scientists (Beth Ebert – Dec 08)
- 8 CXML user outreach to operational centers using data (Neil Gordon – May 2009)
- 9 Web interface issue not resolved, include in Focus groups 1-2 discussion items (Co-chairs, Oct 08)
- 10 CXML to be covered in BAMS TIGGE paper (P. Bougeault, Dec 08)
- 11 CXML notes included in next THORPEX newsletter (Beth Ebert, Sept 08)
- 12 No decision on introduction of gml into cxml; Beth to explore issue further (Feb 2009)
- 13 BOM may contribute cxml by 2010 (Beth Ebert); MeteoFrance by ? (Jean Nicolau)
- 14 Share all cxml-related software, please, using CXML web page (all, continuing)
- 15 CMC CXML data missing (check NCE#P processing, Z. Toth, Sept 08)
- 16 CXML availability from ECMWF is late, compared with others? (Y. Park, P. Bougeault, Oct 08)
- 17 ECMWF CXML goes out to 5 days only, consider requesting extension? (P. Bougeault)
- 18 All centers to include track for hires unperturbed forecast (all, Dec 08)
- 19 Phase-2, distributed archive for TIGGE out
- 20 Draft GIFS Plan reviewed in details. Several useful suggestions made. Plan accepted by WG subject to suggested changes are made by R. Swinbank & Z. Toth (Sept 08)
- 21 Co-chairs to distribute and request feedback from other THORPEX & WWRP WGs (comments by 25 Oct 08)
- 22 GIFS Planning sub-group & co-chairs incorporates comments into final version, Nov 10 08)
- 23 GIFS Plan to be presented to ICSC for their approval (Nov 08, co-chairs)
- 24 TIGGE-LAM planned Jan meeting in Bologna, Italy welcomed by WG; T. Pacagnella to prepare detailed outline and contact IPO with cc to GIFS-TIGGE co-chairs by Sep 30

- 25 TIGGE-LAM developments include coordination with SRNWP Interoperability Project of European nations; Meeting on European TIGGE-LAM archive specifications (Sept 4 2008)
- 26 No decisions yet on specifics of TIGGE LAM boundary and initial condition perturbations (model level / grid / variable vs. standard pressure / lat/lon grid)
- 27 Precip as next pilot project accepted.
- 28 Need for real time exchange of info to involve forecasters and developers at global and regional. Global centers requested to consider making their global precip data available in real time to GIFS product developing centers; data / derived products not to be further distributed without permission of contributing data provider centers (all producing centers inform co-chairs about their ability to contribute, Dec 2008, centers may turn on data distribution as their technical abilities permit)
- 29 Suggestion to work on products initially for 4 regions in parallel: the current and planned CBS SWFDPs of Southern Africa, South America, Southern Pacific, and the disaster prone regions of Southern Asia; design / develop products derived from the combination of ensembles for high impact events specific for each region, eg PQPF for high amounts of precipitation, in collaboration with SERA & RCs, as the distribution of such derived products may have fewer restrictions
- 30 Consider statistical correction of precipitation using regionally available observational data; consider influence on precip of other factors such as MJO
- 31 Centers noted expected upcoming changes in next 1-2 yrs:
- MeteoFrance 30-40 members, nonlinearly evolved SVs (computed for 4 regions of globe), 2/day out to 108 hrs
  - KMA MOGREPS ensemble by end of 2010 – question asked about overlap with UKMET & BOM (reduced membership at higher resolution?)
  - BOM MOGREPS ensemble in 2-3 yrs
  - NCEP T126 => T190, stochastic perturbations, 8<sup>th</sup> order diffusion lead to increased spread (Dec 2008); enhancements in statistical correction methods also in 2009 (precip, US in 2009-10 based on radar & gage estimates, extrapolar globe in 2010-11 based on combined satellite/gage estimates, “RMORPH”)
  - JMA Reduced Gaussian grid – no other change in next 3 yrs
  - UKMET Physics changes soon, 90 => 60 km resolution, 38 => 70 levels in summer 2009
  - CMC no major changes (4/day shorter range hires unperturbed integration)
  - ECMWF pls provide input (P. Bougeault)
  - CMA pls provide input (J. Gong)
- 32 R. Swinbank reported about draft outline for TIGGE User Workshop (May 2009, part of Science Symposium, Monterey, CA). WG asked R.



S. to closely liason with I. Szunyogh and J. Hansen and request 2 timeblocks (half day) for TIGGE Intro talk by P. Bougeault, followed by TIGGE science talks (invite T. Hamill & B. Ebert); Another time block of science talks (depending on # of contributions), ending with joint talk (~45 mins) by 3 archive centers (one intro, other 2 shorter descriptions of all 3 archives); this is followed immediately by user tutorials during poster session; last segment of 2 time blocks (half day) opened by GIFS plan talk by Z. Toth, followed by SWFDP SA talk (invite E. Poolman), SERA TIGGE/GIFS application type talks, ending with talk introducing charge for 2 focus groups. This session ends with 1-hour discussion on GIFS, applications, focus groups. R. Swinbank to prepare updated outline, present to Symposium organizers (Oct 7); contact J. Hansen (or other colleagues in local organizing group) about internet access requirements (30 Sept)

- 33 WG discussed links with other THORPEX & WWRP WGs:
- Mesoscale WG – TIGGE-LAM subgroup to cultivate link (T. Paccagnella, continuing)
  - Verification WG – 2 GIFS-TIGGE members on Verificaiton WG act as liasons, Verification WG Chair also invited to attend GIFS-TIGGE WG meetings; B. Brown also emphasized need for comprehensive evaluation of TIGGE data
  - SERA WG – Measuring value added by GIFS – for forecasters and others; S. Worley to assist B. Mills on accessing and making TIGGE data distributed within SERA community (S. Worley, Nov. 2008); L. Wilson to continue acting as liason to SERA (L. Wilson, continuing)
  - PDP – no representatives present; Following workshop, I. Szunyogh, co-chair of PDP WG suggested to hold a joint PDP – GIFS-TIGGE WG session focusing on ensemble forecasting related research issues one evening at the Monterey Science Symposium; R. Swinbank to insert 2-hour evening joint WG session into Symposium program (Oct 2008); Encourage PDP to promote use of TIGGE archive (co-chairs consult with co-chairs of PDP, Dec 2008)
  - RCs – Three RCs represented (NA, Africa, SH) – very useful for GIFS-TIGGE WG discussions; Suggestion for different RCs hosting GIFS-TIGGE WG meetings (next either South America or SH, co-chairs discuss with IPO, Dec 2008); Africa RC co-chairs express interest working with GIFS-TIGGE WG on product development; they also noted critical role of NCEP Africa Desk in outreach efforts; SH RC representative offered help with outreach in South Pacific GIFS Prototype TC outreach; NA co-chair noted need for NA region outreach to Central America and Caribbean
  - TFSP – Need for discussing linkages between GIFS and seasonal ensemble forecasting. WG noted the lack of report on subject from P. DaSilva, asked Z. Toth to pursue matter with successor of TFSP (CHFP?) (Dec 2008)

- ET-EPS – suggested they focus on GIFS-related training; critical to keep that group abreast of GIFS product developments for early engagement