ISWG_2017_A1: (Ben, Patricia, Gianpaolo) **Action** to distribute and collect responses for a survey of ESM community to links requirements regarding land surface to those of EO-agencies.

ISWG_2017_R1: (Gianpaolo, Dara, Yann, Rolf, Patricia,Xiwu) **Recommending** collection of events for validating the lead-up to and the extreme events which are well observed; which will be defined by a threshold of simultaneous collection of in-situ and remotely sensed observations, and a set of a priori parameters for models of weather prediction and radiative transfer. Case-studies which can be the starting point were presented by Rolf R., Clay B., Patricia de R., and Sue C. – these will need to be verified for consistency of data and can be also used to help define the criteria. Jeff Walker would be good to contact after the criterion are defined.

ISWG_2017_R2: (Gianpaolo, Stéphane, Rolf, Bob, Martin, Xiwu) **Recommending** via a white-paper in RS the creation of a roadmap to bias reduction by encouraging the adoption of a standard pattern of testing of various aspects of the system using the ISWG_2017 case study collection from ISWG_2017_R1.

- The soil model shall use multiple layers in the first 0-10cm the recommendation is for: 0-?, ?-?,… the layers below 10cm (… remain as they were a priori for each system?).
- The use of at least one -- if not more -- of a list of recommended RT models (… and use τ and ω to fit to ESM starting with ?).
- The use of at least one -- if not more -- of a list of recommended ancillary datasets for vegetation and soil parameters.
- An error-budget study performed against ESM and RTM parameters *x,y,z*,… .
- Leverage and participate in ongoing MIP (LS3MIP,GSWP3,…) to assess pixel-scale fit.

ISWG_2017_R3: (Ben, Jeff, Rolf, Yann, Simon, Bob) **Recommending** creation of an L-band climatology which is the baseline record for Earth System Models (ESMs) to replicate.

ISWG_2017_R4: (Gianpaolo, Patricia, Stéphane, Fatima, *Bob*) **Recommending** nations provide and maintain in-situ snow observation networks and to distribute via GTS. This links with actions of the Global Cryosphere Watch of the World Meteorological Organisation (e.g. Snow Watch project http://globalcryospherewatch.org/projects/snowwatch.html) panel and the European COST action (http://www.cost.eu/COST_Actions/essem/ES1404)

ISWG_2017_R5: (Gianpaolo, Stéphane, Patricia, Fatima, Yann) **Recommending** collection of events for comparison of snow products (IMS, MODIS, Geo, Sentinel-1), and model these events with at least one of the models in SMRT, show sensitivity study or information content derivation for these frequencies: L-band, C-band, X-band.

ISWG_2017_R6: (Gianpaolo, Stéphane, Xiwu, Simon, Yann): **Recommending** cataloguing water body extent maps, highlighting those with temporal variability. Include NWP centers, as well as satellite data and product providers. Highlight efforts to merge these maps, and begin to explore methods to effectively combine the information between extent maps.

ISWG_2017_R7: (Gianpaolo, Dara, Bob) **Recommending** creation of a multi-decadal climatology of LST which provides on a ... (monthly?) timescale values of: ..., ..., and a function to fit the diurnal cycle as a baseline record for Earth System Models (ESMs) to replicate.

Response from EUMETSAT LSA-SAG (from Isabel Trigo - contacted by Gianpaolo): there are two initiative on data reduction, for near real time LST, that can be easily performed for climate data records:

1) Within Copernicus Global Land (http://land.copernicus.eu/global/products/lst)

Currently providing a 10-day Land Surface Temperature with Daily Cycle (amongst others, the median LST per hourly time-slot within the 10-day compositing period). This is performed for GOES, MSG and HIMAWARI disks.

2) The LSA SAF (for SEVIRI/MSG only), on top of the above provides a 5 parameter estimate describing the median and maximum diurnal cycles of LST during the 10-day compositing period - please see Figure 6 in the att ATBD (page 17). This is done by fitting a model of the shape of LST diurnal cycle, as shown in Fig 6/ATBD and described in: Göttsche, F.-M., and Olesen, F.S. (2009). Modelling the effect of optical thickness on diurnal cycles of land surface temperature. Remote Sensing of Environment, 113, 2306–2316.