



# ILWS End Users Task Group Report

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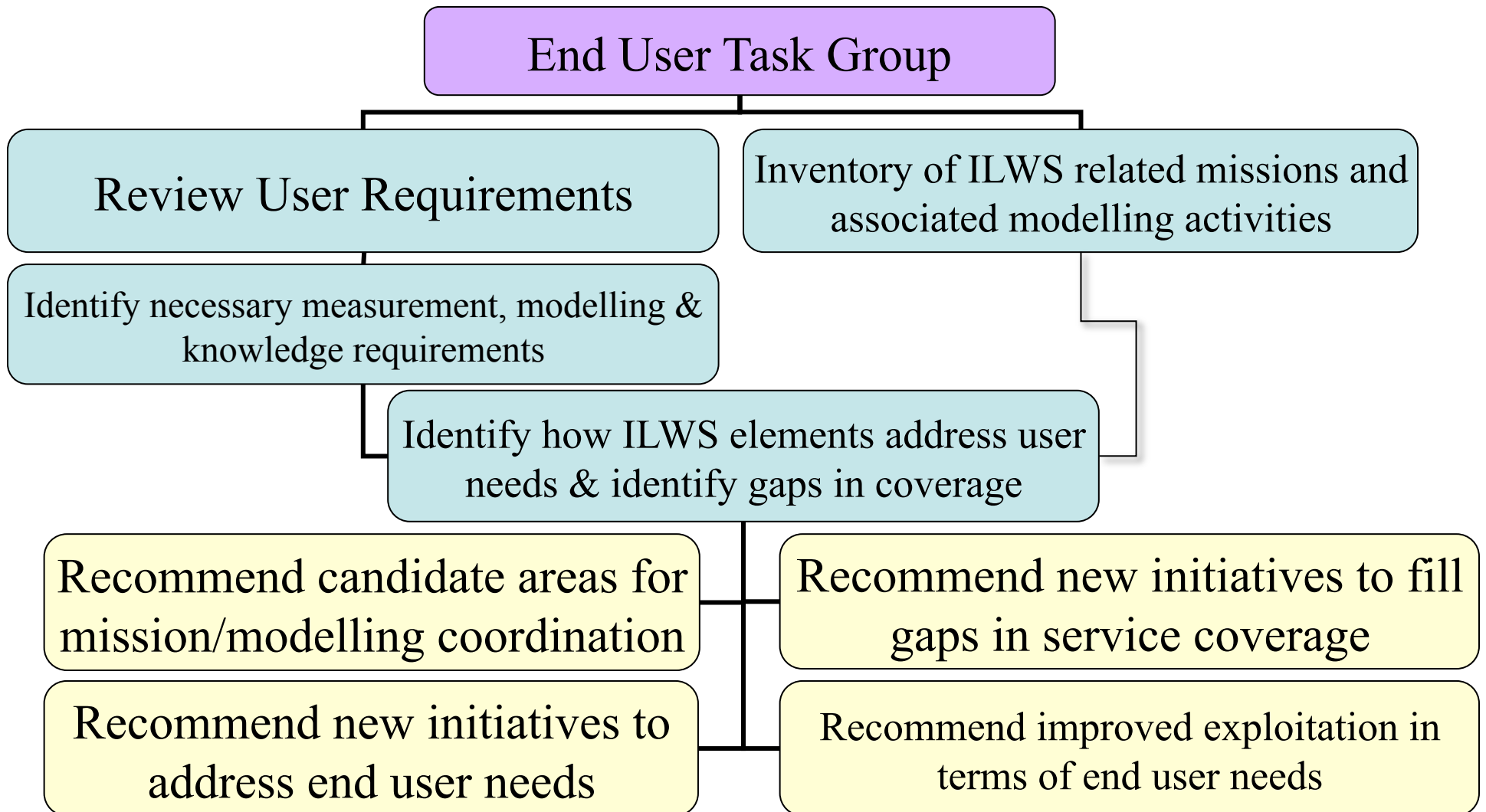
# Overview

- *Current Membership*
- *Summary of the task group goals and workplan*
- *Compilation of User requirements and characteristic services*
- *Next steps & schedule*

# Current Membership

- *Eamonn Daly (ESA, chair)*
- *Terry Onsager/Rodney Viereck (NOAA)*
- *Maki Akioka (NICT)*
- *David Boteler (NR Canada)*
- *Norma Crosby (SWWT Chairperson, BISA)*
  
- Eamonn stepping down as ESA representative, replaced by Juha-Pekka Luntama
- Janet Barth changed role, missing NASA representative
  
- *Election of new chair?*
- *Good opportunity to review the workplan and aims of the TG*

# Workplan: Key Tasks



# End User Requirements Survey

Resources consulted:

- ESA Space Weather Applications Initiative:
  - Feasibility Study of a European Space Weather Programme (1999-2001) user requirements assessment
  - SWENET Service Development Activities user requirements
  - ESA Nanosatellite beacons for space weather monitoring measurement & user requirements
- ISES Regional Warning Centres: service provision in response to user requirements
  - Including NOAA/SWPC User Requirements and Service Priorities
- Report of the Assessment Committee of the US National Space Weather Program, 2006
- Poster presentation during European Space Weather Week #5 2009

# Requirements Analysis

- Divided into several domains:
  - **Space Industry:** spacecraft operators, launchers, space mission design, manned spaceflight programmes (LEO), manned spaceflight exploration programmes (beyond LEO)
  - **Industries Depending on Ionospheric Propagation:** communications: (including HF, SATCOM, rescue): navigation and positioning, radar operators, airlines and air-traffic-control organisations
  - **Ground Based Industries:** resource exploration (airborne magnetic surveys, geophysical surveys, directional drilling), power transmission and GIC
  - **Research, Education and Other Sectors:** solar influences on climate change research, museum displays, tourism, weather services, diverse including general interest, scientific community, insurance industry
  - **Cross-Cutting Space Weather User Requirements**
- Information on timeliness, accuracy (where available) and rationale given

# e.g. Spacecraft Operators Reqs

User Requirement	Timeliness	Accuracy	Rationale
Forecast energetic particle events	>1-2 days		SEEs e.g memory corruption/ parts failure. Use forecast to take preventative measures & prepare recovery
Forecast geomagnetic storm conditions	>1-2 days		Likelihood of surface charging leading to discharge effects.
nowcast energetic particle (electron & proton) envt.	<5mins	95%	monitoring s/c health & anomaly identification at all longitudes
Nowcast and Forecast local plasma envt	nowcast/ forecast	95% (nowcast)	predict surface charging leading to discharge causing in-orbit anomalies, phantom commands and parts failure.
F10.7, Kp, Ap indices	nowcast, daily, 3day, 27day forecast		Used in orbit determination to desired accuracy. Required for mission planning and scheduling. Also input to models.

# Cross Cutting Requirements

- Services should demonstrate continuous availability prior to, during, and after periods of severe space weather
  - *implies instruments continue to function during and after large events & data transmission is not interrupted*
- Services should demonstrate continued availability in the event of premature failure or end-of-life of key space weather systems
  - *Key data sources should be identified with a replacement strategy*
- Efficient distribution of data as service output to users a priority
  - *Timeliness is a key requirement for many space weather services*
- Instrumentation used to provide key inputs to space weather services should be well calibrated
- Data quality monitoring should be implemented
  - *in cases of reduced data quality, information should be propagated through to users*
- Quality assurance should be in place for instrumentation upon which reliable services are to be based



# Current Activities and Schedule

- User requirement survey now complete
- Next steps:
  - Report will be published
    - compare with ILWS related missions available & planned data resources
      - Requires active participation of other TG members & mission responsables!
  - Formalise change of membership
  - Arrange meeting (telecon?) of TG members to review workplan and elect new chairperson (tbc)