

WCRP/GEWEX

Global Land/Atmosphere System Study (GLASS)

GLASS / Vision of 7-rapporteurs

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From:

GEWEX Scientific Steering Group meeting (SSG-29)

Sanya, Hainan Province, China, 6-10 February 2017

Preamble

- Would be nice if GEWEX SSG (at least rapporteurs) be informed about GLASS publications, reports, workshops ... → not to catch up with all at once during SSG meeting!
- Lack of interactions when reporting during SSG meetings → shorten the presentations to allow more questions?

Alignment with WCRP Grand Challenges (GC) and GEWEX Science Questions (GSQ)

	WCRP GC							GEWEX GSQ			
GLASS Projects	Melting Ice	Clouds, Circulation and Climate Sensitivity	Carbon Feedbacks	Weather and Climate Extremes	Water for Food	Regional Sea-Level Change and Coastal Impacts	Near-term Climate Prediction	Observations and Predictions of Precipitation	Global Water Resource Systems	Changes in Extremes	Water and Energy Cycles and Processes
PALS			✓	✓	✓		✓		✓	✓	✓
PLUMBER				✓	✓		✓		✓	✓	✓
ALMIP2		✓							✓		✓
PILDAS								✓	✓	✓	✓
GSWP3				✓	✓				✓	✓	✓
LS3MIP				✓	✓			✓	✓	✓	✓
Anthro Water		✓			✓				✓		✓
LUMIP			✓	✓	✓				✓	✓	✓
ILAMB			✓	✓	✓		✓		✓	✓	✓
SoilWat			✓	✓	✓		✓		✓	✓	✓
DICE		✓		✓				✓		✓	✓
LoCo		✓		✓				✓		✓	✓

Alignment with WCRP Grand Challenges (GC) and GEWEX Science Questions (GSQ)

	WCRP GC						GEWEX GSQ				
	Melting Ice	Clouds, Circulation and Climate Sensitivity	Carbon Feedbacks	Weather and Climate Extremes	Water for Food	Regional Sea-Level Change and Coastal Impacts	Warm Climate Protection	Observations and Predictions of Precipitation	Global Water Resource Systems	Changes in Extremes	Water and Energy Cycles and Processes
GLASS Projects											
PALS							✓		✓	✓	✓
PLUMBER				✓	✓		✓		✓	✓	✓
ALMIP2		✓							✓		✓
PILDAS									✓	✓	✓
GSWP3									✓	✓	✓
LS3MIP									✓	✓	✓
Anthro Water									✓		✓
LUMIP									✓	✓	✓
ILAMB			✓	✓	✓		✓		✓	✓	✓
SoilWat			✓				✓		✓	✓	✓
DICE		✓		✓				✓		✓	✓
LoCo		✓		✓				✓		✓	✓

MUCH APPRECIATED

→ Next year include additional 3 'out of the box questions' ?

Achievements / Positive - 1

- **Nice follow-up of existing projects**
 - **LoCo**: diagnostics synthesis + publications
 - **PALS** (last year's worry) seem to be a community effort now **(Yes/No ?)** + links with iLAMB **(although not completely sure about complementarity of both projects)**
 - **PLUMBER** – phase 1 achieved, phase 2 in prep.
- **+ launch of new projects – 1**
 - LUMIP (that is indeed the follow up of LUCID)
 - what will be the role of GEWEX? Diagnostics?
 - Lots of carbon cycle issues
 - LS3MIP

Achievements / Positive - 2

- **+ launch of new projects - 2**

- SoilWAT

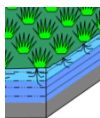
- how soil processes (infiltration, evaporation, soil properties, etc.) are represented in land-surface models;
 - the role of plants in climate models;
 - how to bridge scales between traditional soil models and scales relevant to climate modeling;
 - how to effectively incorporate groundwater models;
 - strategies for incorporating information from highly resolved global soil maps
 - how to move forward with integration of the communities

Achievements / Positive - 3

- **+ thoughts about additional projects**
 - Including water management in LSMs
 - Last year was discussed the possibility to include Human dimensions in synergy with iLEAPS. LUMIP and this 'water management' go in right direction But what is the status of contacts with iLEAPS? Shall this be a sub-project of GLASS???
 - LIAISE? Iberian semi-arid ... what's the status of the project?

Put forward last year by rapporteurs and still an issue: From Benchmarking to coupled simulations

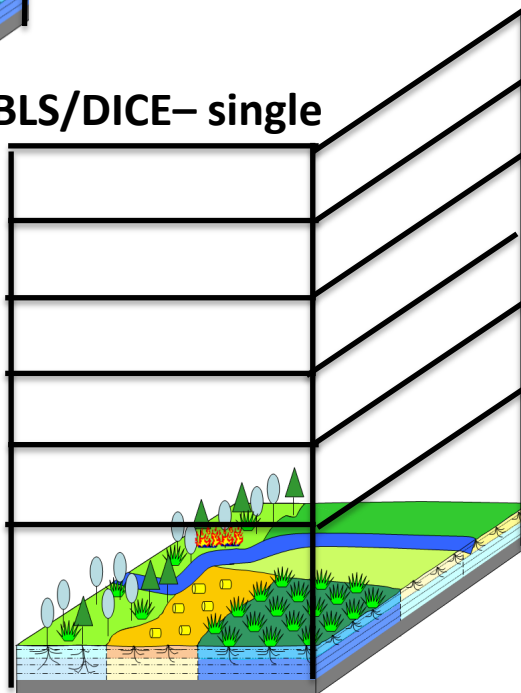
0D (single point / regional / global),
1D L/A and then 2D L/A → consistency?



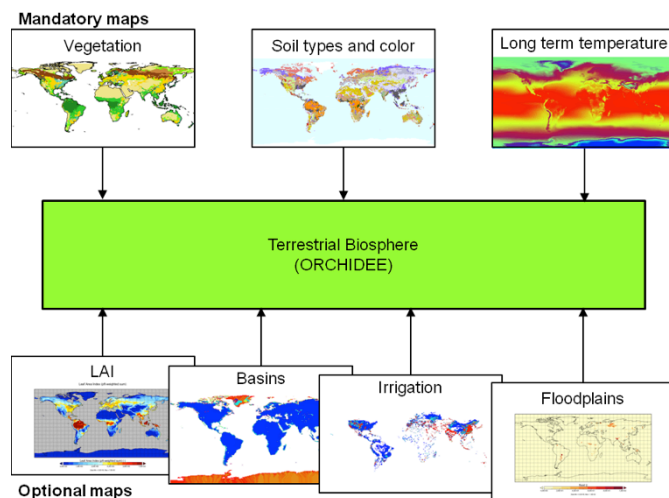
0D off-line
– single site
PALS/PLUMBER



1D GABLS/DICE– single
site



3D / LoCo– Regional



2D global ... GSWP / LS3MIP

MIPs: Fully-coupled
Global NWP and Climate
models. Same metrics.

2D off-line – Regional LDAS

Regarding Evaluation/Benchmarking

On going problem of land-surface models is their inability to correctly represent the partitioning of available energy between Latent Heat Flux (LE) and sensible heat flux (H) [mentioned in PLUMBER, LUCID]

Last year one suggested action was: Develop review paper/ retrospective study on advancement regarding modeling of partitioning LE and H and its observations, what do we need to get right.

→ Through PLUMBER?

→ Does LoCo bring additional info?

→ Meta Analysis of existing values / errors on bowen ratio?

Projects / Suggestions - 1

- **Monsoons**

- Re-start ... but sounds weak in terms of man-months involvement → communication needed to 'recruit' / engage more GEWEX scientists?
- Need links with NOAA?
- What about WWRP?

- **EURO-CORDEX LUCAS Flagship project**

- Just accepted by CORDEX
- Real follow-up of LUCID at regional scale
- To be endorsed by GEWEX?
- LoCo diagnostics could be applied to idealized simulations planned

Projects / Suggestions - 2

- **S2S**
 - What role for GEWEX?
 - Sufficient man-months involvement?
 - Anyone to think about this + connection with WWRP and propose (or not) something for next SSG?
- **ISI-MIP / HappiMIP (?)** (beyond 'just' GLASS)
 - What links envisaged with ISI-MIP community?
 - Targetted warming for future runs (1.5°C) envisaged last year ...
- **Climate services** (beyond 'just' GLASS)
 - Shall we think about possible links?



THANK YOU