SCIENTIFIC PROGRAM (morning)

Mon	**Introductions**	**Tue**		**Wed**		**Thu**		**Fri**	
8:30	Welcome and Introduction - **Steve Long (Chair), Howard Griffiths (PEPG chair)**	8:30	Practical sessions	8:30	Practical sessions	8:30	Practical sessions	8:30	Practical sessions
8:45	Leaf gas exchange and hyperspectral reflectance **Andrew Leakey**								
9:30	Chlorophyll fluorescence **Tracy Lawson**								
10:15	Coffee break	10:15	Flexible coffee	10:15	Flexible coffee	10:15	Flexible coffee	10:15	Flexible coffee
10:30	Plant water relations **Kathy Steppe**	10:30	Practical sessions (continued)	10:30	Practical sessions (continued)	10:30	Practical sessions (continued)	10:30	Practical sessions (continued)
11:15	Roots, soil and water **Colin Campbell**								
12:00	Canopy, ecosystems and remote sensing **Carl Bernacchi**								
12:45	Lunch	12:15	Lunch	12:15	Lunch	12:15	Lunch	12:15	Lunch

SCIENTIFIC PROGRAM (afternoon)

Mon		**Tue**	Chair: **S. Long**	**Wed**	Chair: **H. Griffiths**	**Thu**	Chair: **T. Lawson**	**Fri**	Chair: **C. Bernacchi**
14:00	Meet the manufacturers! **Delta-T** **LI-COR** **METER** **Ocean Optics** **Plantanalytix** **Walz** **JB hyperspec** **Mahr** **Photosynq** **Hansatec**	13:30	Gas exchange and Chlorophyll fluorescence **Tracy Lawson**	13:30	Roots and soil interactions **Hannah Schneider**	13:30	Eddy covariance: ecosystem carbon balance **Gary Lanigan**	13:30	Fundamentals of PhotosynQ **Dave Kramer**
		14:15	A view on chlorophyll fluorescence and the Multi-Phase Flash **Bernard Genty**	14:15	Insights into the soil environment **Dough Cobos**	14:15	SIF, Remote sensing and hyperspectral reflectance **Caitlin Moore**	14:15	Phenotyping and optical tomography **Andrew Leakey**
15:00	Practical sessions	15:00	Tea break	15:00	Social/Free time - Lisbon, beach, surfing, etc.	15:00	Tea break	15:00	Tea break
		15:30	Plant and soil water relations **Dan Johnson**			15:30	Hyperspectral reflectance – problems, mistakes and interpretation **Andreas Burkart**	15:30	Analysis and preparation of results (All)
		16:15	**Flash talks + poster session 1**			16:15	Chlorophyll fluorescence and P700 **Katharina Siebke**	16:15	Final results presentations, prizes and Closure
						16:45	**Poster session 2**		
18:30	Dinner		Dinner		(*no organised dinner*)		Dinner	18:30	BBQ Dinner
20:00	Wine trail								
21:30	Return bus to Costa	21:30	Return bus to Costa			21:30	Return bus to Costa	21:30	Return bus to Costa

PRELIMINARY PRACTICAL SESSIONS

	Session	**Methods**
1	CO_2 gas exchange	● Leaf gas exchange of CO_2 and H_2O ● CO_2 response curves ● Survey/snapshot measurements ● Deriving parameters from response curves ● Leaf Hyperspectral measurement for deriving e.g. Vcmax
2	Chlorophyll fluorescence	● Meaning of chlorophyll fluorescence parameters ● Doing measurements in the lab and the field ● Combined chlorophyll fluorescence and gas exchange of C3 and C4, incl. chlorophyll fluorescence imaging ● PhotosynQ, protocols, measurements and analysis
3	Plant-water relations	● Environmental measurement ● Water uptake and sap flow ● Leaf hydraulics measurement ● Leaf water potential ● Porometry measurement
4	Soil, water and roots	● Functioning of roots ● Determining soil moisture content, water potential ● Soil quality (porosity, cation exchange) ● Soil nutrient (uptake) ● Installing soil probes
5	Canopy and ecosystem fluxes and monitoring	● Plant canopy structure & light penetration ● Canopy radiation and energy budgets, including ET ● Eddy covariance ● Solar Induced Fluorescence ● Remote sensing (NVDI, PRI, etc.) ● Soil respiration