EASI TRAINING COURSE, June 25- July 4, 2017, SHANNON (Ireland)

	DAY_1. Sunday 25th June	DAY_2. Monday 26th June	DAY_3. Tuesday 27th June	DAY_4. Wednesday 28th June	DAY_5. Thursday 29th June
	Arrival and welcome	**Airborne turbulence measurements and flight strategies**	**Airborne measurements of aerosols and clouds**	**Flight 1 and WG activity (*)**	**Flight 2 and WG activity (*)**
9:00-10:30		Welcome. General info on training course, and research site. Self- introduction of the EUFAR trainers, and SAFIRE members. Plan for training course and outline of the programme **[FC]** Self-introduction of participants and scientific Working Groups (WG) supervisors, divide participants into 4 scientific WGs (4 groups of 5 participants). **[FC]**	**9:00-10:30** Visit to the ATR42 in Shannon Airport. Briefing with the aircraft crew. (All groups). **[Safire Staff]**	**8:00** Meteo and Flight 1. Departure to experimental site. Equipment and site preparation (flight targets) **9:00** Group work for other WGs	**8:00** Meteo and Flight 2. Departure to experimental site. Equipment and site preparation (flight targets) **9:00** Group work for other WGs
10:30-11:00		Coffee break	Coffee break	Coffee break	Coffee break
11:00-12:15		**Lecture 1**: Introduction to atmospheric turbulence. (Definitions of turbulence, Reynolds averaging, Turbulent Kinetic Energy equation, introduction to Kolmogorov theory, elementary information on atmospheric turbulence). **[SM]**	**Lecture 5:** EGADS Tool for Data Analysis and Visualization **[OH]**	Group work for other WGs	Group work for other WGs
12:15-13:00			**Met Forecast Discussion:** Weather forecast of Meteo-France for June 28 and decision about flight plan for FLIGHT 1 – Inform Airport Authorities	**Met Forecast Discussion:** Weather forecast of Meteo-France for June 29 and decision about flight plan for FLIGHT 2 – Inform Airport Authorities	**Met Forecast Discussion:** Weather forecast of Meteo-France for June 30 and decision about flight plan for FLIGHT 3 – Inform Airport Authorities
13:00-14:00		Lunch	Lunch	Lunch	Lunch
14:00-15:00		**Lecture 2:** The structure of marine/coastal boundary layers and some flight sampling strategies **[IF]**	**Lecture 6:** Flight operations, aircraft limitations and flight procedures. Flight safety and working rules onboard. **[Safire Staff]**	**Lecture 8:** Flux estimation, scalar budgeting techniques, and atmospheric chemistry **[IF]**	**Lecture 10:** Estimation of turbulence properties from airborne measurements. (Focus on TKE and TKE dissipation rate, and scaling) **[SM]**
15:00-15:30		Coffee break	Coffee break	Coffee break	Coffee break
15:30-16:30	**15:30 departure from the Dublin International Airport by shuttle bus**	**Lecture 3:** Airborne measurements of aerosols and clouds 1 **[FC]**	**Lecture 7:** Processing core parameters of the ATR42 **[BP]**	**Lecture 9:** How to manage quick looks and high-frequency data **[BP]**	**Lecture 11:** More on data files and analysis tools **[BP]**
16:30-18:30		**Lecture 4: 16:30 to 17:30** Aircraft modifications and possible measurements on board the ATR42 **[Safire Staff]** **Lecture 4a: 17:30 to 18:30** Real Time Data display onboard Quick-looks **[Safire Staff]**	**16:30 to 19:00 Student activity 1:** Allocation of group science projects. Design of flight experiments. Flight objectives and sampling strategies. Data base management.	**Student activity 2:** Measured data analysis &/or tutorials with analysis tools. **Brief report of Flight 1 from associated WG.**	**Student activity 3:** Measured data analysis &/or tutorials with analysis tools. **Brief report of Flight 2 from associated WG.**
18:30-19:00	**18:00-19:00** Registration and room allocation. Ice breaking refreshment		**Tutorial 1:** Sample exercise of turbulent data analysis **[IF & BP]** **REPORTING:** Each scientific working group reports on sampling strategy and flight plan **[for each WG, one rapporteur]**		
19:00-20:00	Dinner	Dinner	Dinner	Dinner	Dinner

	DAY_6 Friday 30th June	DAY_7. Saturday 1st July	DAY_8. Sunday 2nd July	DAY_9. Monday 3rd July	DAY_10. Tuesday 4th July
	Flight 3 and WG activity (*)	**Flight 4 and WG activity (*)**	**Airborne data processing**	**Visit to MaceHead Atmospheric Research Station**	**Student presentations**
9:00-10:30	**8:00** Meteo and Flight 3. Departure to experimental site. Equipment and site preparation (flight targets). **9:00** Group work for other WGs	**8:00** Meteo and Flight 4. Departure to experimental site. Equipment and site preparation (flight targets). **9:00** Group work for other WGs	**Lecture 16:** Coastal meteorology 2. Air Sea Land interactions **[MM]**	**7:30** Departure from Shannon to Mace Head Atmospheric Research Station	**FINAL REPORTING** **Scientific Working Group 1**: Presentation **Scientific Working Group 2**: Presentation **Scientific Working Group 3**: Presentation
10:30-11:00	Coffee break	Coffee break	Coffee break		Coffee break
11:00-12:15	Group work for other WGs	Group work for other WGs	**Lecture 17:** Remote vs ground measurements of aerosols and their impact on climate **[DC]**		**11:00 to 11:30 Scientific Working Group 4**: Presentation **11:30 to 12:00 Conclusions**
12:15-13:00	**Met Forecast Discussion:** Weather forecast of Meteo-France for July 1 and decision about flight plan for FLIGHT 4 – Inform Airport Authorities				
13:00-14:00	Lunch	Lunch	Lunch	Packed lunch at the site	12:15 -13:15 Lunch
14:00-15:00	**Lecture 12:** Flux estimations **[IF]**	**Lecture 14:** Marine Aerosols **[DC]**	**Student activity 6:** Measured data analysis &/or tutorials with analysis tools. Student presentations preparation.		**14:00 Departure to Dublin international airport by shuttle bus**
15:00-15:30	Coffee break	Coffee break	Coffee break		
15:30-16:30	**Lecture 13:** Airborne measurements of aerosols and clouds 2 **[FC]**	**Lecture 15: 15:30-17:00** Coastal meteorology 1 . Concepts and equations **[MM]**	**FREE AFTERNOON**		
16:30-18:30	**Student activity 4:** Measured data analysis &/or tutorials with analysis tools. **Brief report of Flight 3 from associated WG.**	**Student activity 5 17:00-18:30:** Measured data analysis &/or tutorials with analysis tools. **Brief report of Flight 4 from associated WG.**			
18:30 -19:00				**18:30** Estimated arrival in Shannon	
19:00-20:00	Dinner	Dinner	Dinner	Special Dinner	

(*) Depending on weather forecast and on the flight goals, the flight can be moved to the afternoon. Then, the afternoon program will be moved to the morning.

Training School Organizers

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Trainers

FC – Francesco Cairo, CNR – ISAC, Rome, Italy, f.cairo@isac.cnr.it	EUFAR trainer
IF – Ian Faloona, UCD, University of California Davis, Davis California, icfaloona@ucdavis.edu	EUFAR trainer
SZ – Szymon Malinowski, University of Warsaw, Warsaw, Poland, malina@igf.fuw.edu.pl	EUFAR trainer
MM – Mario M. Miglietta, CNR – ISAC, Lecce, Italy, m.miglietta@isac.cnr.it	EUFAR trainer
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DC – Darius Ceburnis - National University of Ireland Galway, Ireland, darius.ceburnis@nuigalway.ie	EUFAR trainer
OH – Olivier Henry - Meteo France, Toulouse, France, olivier.henry@meteo.fr	EUFAR trainer
Dominique Duchanoy (Captain), Guillaume Seurat (Pilot), Pierre Vitupier (Flight engineer) Tetyana Jiang, Cyrille Rioux, Hubert Bellec, Frédéric Pouvesle, Michel Cluzeau (Test engineers), Jean-Christophe Canonici (Ground coordinator)	SAFIRE staff (9 people)

Group tutors

FC – Francesco Cairo, CNR – ISAC, Rome, Italy, f.cairo@isac.cnr.it	Group 1 Tutor
IF – Ian Faloona, UCD, University of California Davis, Davis California, icfaloona@ucdavis.edu	Group 2 Tutor
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