2nd TEA-IS summer school

Collioure (France)

23-27 June 2014

Scientific program

	June 23 Physics of atmospheric electricity	June 24 Lightning-induced perturbations of the atmosphere/ionosphere	June 25 High Energy Atmospheric Electricity	June 26 Perturbations of the atmosphere/ionosphere induced by thunderstorms	June 27 Current and future space projects: objectives, instrumentation and expected impacts
8 :45-9 :00	Opening	8:30 – 9:15 Sprite high speed observations and implications for models – H. Stenbaek Nielsen			
09 :00-10 :00	Meteorology of thunderstorms – S. Soula	9:15 – 10:00 TLE modeling: an overview – A. Luque	High-Energy Atmospheric Electricity – J. Dwyer	Atmospheric disturbances related to thunderstorms and possible effects on weather and climate – E. Blanc	9:00 – 9:30 Past and Future challenges of space observations – Y. Yair 9:30 – 10:00 Fermi TGF Observations – M. Briggs
10:00-10:30	***Coffee Break***				
10 :30-11 :00	Cloud electrification processes – E. Avila	Jet observations and theories – O. Van der Velde	TGF observations – N. Ostgaard	Impact of thunderstorm activity on the middle atmosphere dynamics – A. Hauchecorne	AGILE – M. Marisaldi
11 :00-11 :30	Lightning physics – P. Lalande	The chemistry of high altitude discharges – H. Winkler	Theory and modeling of X- and gamma-ray emission from lightning – S. Celestin	VLF wave studies of lightning effects in the lower ionosphere – C. Haldoupis	GLIMS – M.Sato
11 :30-12 :00	Lightning ELF/VLF emissions and lightning detection – M. Cohen	Ionization perturbations from lightning and TLEs in the lower ionosphere – P.L. Blelly	Electron Acceleration above Thunderclouds – M. Fullekrug	Global Electric Circuit and climate – C. Price	TARANIS – J.L. Pinçon
12 :00-12 :30	Lightning space observations for nowcasting – H. Christian	Transient discharges in technology: from electricity networks to plasma medicine – U. Ebert	Modeling the radiation doses from terrestrial gamma-ray flashes – J. Dwyer	Gravity wave from thunderstorms: impact on atmospheric and climate models – P. Heinrich	ASIM – T. Neubert
12:30-14:00	***Lunch at the summer school place***		***Afternoon off***	***Lunch at the summer school place***	
14 :00-15 :00	Student oral presentations	Student oral presentations		Student oral presentations	Student oral presentations
15 :00-16:00	Posters (session #1)	Posters (session #1)		Posters (session #2)	Posters (session #2)
16 :00 - 16 :30	***Coffee break***			***Coffee break***	Closing
16 :00 - 18 :30	Training lessons (small groups): • Using space mission data (DEMETER) – M. Parrot • TLE ground based observations – O. Chanrion Open discussions	Training lessons (small groups): • Using space mission data (DEMETER) – M. Parrot • TLE ground based observations – O. Chanrion Open discussions		Training lessons (small groups): • Using space mission data (DEMETER) – M. Parrot • TLE ground based observations – O. Chanrion Open discussions	
19 :00-19 :30		*Welcome reception at the Château Royal*			18:30-19:30 Conference open to the public
19:30-20:30			*School Dinner*		
20 :30 22 :00	***St Jean fire (from 22:00)***				

Monday 23 June

Physics of atmospheric electricity

8:45 – 9:00	*Summer school opening*
9:00 – 10:00	Meteorology of thunderstorms – S. Soula
10:00 – 10:30	*Coffee break*
10:30 – 11:00	Cloud electrification processes – E. Avila
11:00 – 11:30	Lightning physics – P. Lalande
11:30 – 12:00	Lightning ELF/VLF emissions and lightning detection – M. Cohen
12:00 – 12:30	Lightning space observations for nowcasting – H. Christian
12:30 – 14:00	*Lunch*
14:00 – 14:15	Thunderstorm geometry & morphology suggested from Cassini/RPWS Saturn lightning flashrate data and comparative terrestrial meteorology - J.A. Pagaran
14:15 – 14:30	Lightning strokes frequency homogenization for climatological analysis: application to LINET data records over Europe - M. Petracca
14:30 – 14:45	Streamer-to-leader transition in gigantic jets - C.L. da Silva
14:45 – 15:00	GRASSP Instrument: Status and First Results - M. Passas
15:00 – 16:00	Poster session #1
16:00 – 16:30	*Coffee break*
16:30 – 18:30	Training lessons: • Group #1: Using space mission data (DEMETER) – M. Parrot • Group #2: TLE ground based observations – O. Chanrion Open discussions

Poster session #1

Physics of atmospheric electricity

1	E. Adirosi	Analysis of a Convective Event Using Different Sensors
2		
3	L.-J Gallin	Acoustic characterization of lightning discharges
4	G. Hodosán	Detecting lightning signatures on extrasolar planets and brown dwarfs
5	I. Kolmasova	Correlation of pre-stroke magnetic-field pulses measured by a broad-band receiver with the sources of VHF radiation recorded by LMA
6	S. Kumar	AN OVERVIEW OF LF PERTURBATIONS AT LOW LATITUDE IN THE SOUTH PACIFIC REGION
7	J.C. McCormick	Effects of Solar Flux on VLF Lightning Sferic Propagation
8	H. Mkrtchyan	Lightning detection networks and Thunderstorm Ground Enhancements
9		
10	M.G. Nicora	Diurnal patterns in lightning activity over South America
11	O. Santolik	A two-point direction finding method for impulsive electromagnetic signals produced by lightning
12		

Lightning-induced perturbations of the atmosphere/ionosphere

13		
14	J. Bór	Case studies of red sprite producing thunderstorms in Hungary
15		
16	G. Diniz Sousa	Study of Sprite Related Electric Fields using FEMM simulations
17	A. Dubinova	Positive streamer discharge inception from dielectrics
18	T. Hoder	Laboratory streamers under TLE conditions: spectroscopic analysis with emphasis on the determination of the electric field strength
19	M.A. Ihaddadene	Modeling of optical emissions produced by sprite streamers in preparation for the TARANIS space mission
20	M.A. Kaznacheeva	Research of transient events in the upper atmosphere measured by Universitetsky-Tatiana-2 satellite far from lightning activity
21	N.G. Lehtinen	On the spatial scale of streamers
22	Ajeet K Maurya	Observations of first TLE's events over Indian Sub-continent
23	J. Mlynarczyk	A sequence of sprites - an analysis of ELF signals and optical recordings
24	V.S. Morozenko	Transient UV flashes in the upper atmosphere as a background for the orbital detector TUS operation
25	F.T. São Sabbas	TLE and HEET Research in South America with the LEONA Collaborative Network
26	Y. Suzuki	Displacement between Position of Winter Sprites and Strike Point of Could-to-Ground Lightning
27	Y. Suzuki	Preliminary Reports of Summer Sprite Observation at The Top of Mt. Fuji, Japan

Perturbations of the atmosphere/ionosphere induced by thunderstorms

28	E. Camporeale	Linear mode conversion between cold plasma waves mediated by a density inhomogeneity in the ionosphere

Tuesday 24 June

Lightning-induced perturbations of the atmosphere/ionosphere

8:30 – 9:15	Sprite high speed observations and implications for models – H. Stenbaek Nielsen
9:15 – 10:00	TLE modeling: an overview – A. Luque
10:00 – 10:30	*Coffee break*
10:30 – 11:00	Jet observations and theories – O. Van der Velde
11:00 – 11:30	The chemistry of high altitude discharges – H. Winkler
11:30 – 12:00	Ionization perturbations from lightning and TLEs in the lower ionosphere – P.L. Blelly
12:00 – 12:30	Transient discharges in technology: from electricity networks to plasma medicine – U. Ebert
12:30 – 14:00	*Lunch*
14:00 – 14:15	Similarities in appearance between natural sprites and pilot systems in the lab - P. Kochkin
14:15 – 14:30	The plasma-chemical self-consistent model for halo/sprite formation in the mesosphere - A.A. Evtushenko
14:30 – 14:45	Gas heating and chemical impact of Sprite streamer channels in the Earth mesosphere - F.C. Parra-Rojas
14:45 – 15:00	High Altitude Balloon-Borne X-ray Detector Observations of Impulsive Electron Precipitation Events Associated with Lightning Activity During the 2013/2014 BARREL Campaigns - G.S. Bowers
15:00 – 16:00	Poster session #1 (Same posters as Monday)
16:00 – 16:30	*Coffee break*
16:30 – 18:30	Training lessons: • Group #2: Using space mission data (DEMETER) – M. Parrot • Group #3: TLE ground based observations – O. Chanrion Open discussions
19:00 – 19:30	*Welcome reception at the Château Royal*

Wednesday 25 June

High Energy Atmospheric Electricity

9:00 – 10:00	High-Energy Atmospheric Electricity – J. Dwyer
10:00 – 10:30	*Coffee break*
10:30 – 11:00	TGF observations – N. Ostgaard
11:00 – 11:30	Theory and modeling of X- and gamma-ray emission from lightning – S. Celestin
11:30 – 12:00	Electron Acceleration above Thunderclouds – M. Fullekrug
12:00 – 12:30	Modeling the radiation doses from terrestrial gamma-ray flashes – J. Dwyer
12:30 – 19:30	
19:30 : 22:00	*School diner*

Thursday 26 June

Perturbations of the atmosphere/ionosphere induced by thunderstorms

9:00 – 10:00	Atmospheric disturbances related to thunderstorms and possible effects on weather and climate – E. Blanc
10:00 – 10:30	*Coffee break*
10:30 – 11:00	Impact of thunderstorm activity on the middle atmosphere dynamics – A. Hauchecorne
11:00 – 11:30	VLF wave studies of lightning effects in the lower ionosphere – C. Haldoupis
11:30 – 12:00	Global Electric Circuit and climate – C. Price
12:00 – 12:30	Gravity wave from thunderstorms: impact on atmospheric and climate models – P. Heinrich
12:30 – 14:00	*Lunch*
14:00 – 14:15	Numerical Modeling of the Global Electric Circuit - G.M. Lucas
14:15 – 14:30	Thunderstorm – lower ionosphere relationship as shown by ionograms recorded at Pruhonice in two summer campaigns of 2013 - V. Barta
14:30 – 14:45	Modelling the runaway relativistic electron avalanche and the feedback mechanism with GEANT4 - A.B. Skeltved
14:45 – 15:00	Effects of atmospheric electric fields on radio emission from air showers - T.N.G. Trinh
15:00 – 15:15	Laboratory streamers under TLE conditions: spectroscopic analysis with emphasis on the determination of the electric field strength - T. Hoder
15:15 – 16:15	Poster session #2
16:15 – 16:45	*Coffee break*
16:45 – 18:45	Training lessons: • Group #3: Using space mission data (DEMETER) – M. Parrot • Group #1: TLE ground based observations – O. Chanrion

Poster session #2

High Energy Atmospheric Electricity

1	V. Aamodt	Search for Terrestrial Electron Beams (TEB) in SAMPEX data
2	K. Albrechtsen & S. Coyle	Do all lightning produce TGF's? Approaching this question from two angles using data from RHESSI, TRMM and WWLLN
3	Z. Bonaventura	Effect of fast electrons on streamer propagation simulated with a beam-bulk model for the production of TGFs
4		
5	H. Espinós-Morató	The journey of the Terrestrial Gamma Flashes: propagation through the atmosphere
6	T. Gjesteland	The second RHESSI TGF catalog
7	C. Köhn	Energy resolved positron and hadron spectrum produced by a negative stepped lightning leader
8	A. Luque	Saturation of Relativistic-Runaway Electron Avalanches into Uniformly Propagating Ionization Fronts
9	J. Navarro-González	Cooking TGFs with GEANT4
10	R.S. Nisi	An altitude and distance correction to the source fluence distribution of TGFs
11	D. Sarria	Terrestrial Gamma-Ray Flashes and associated electron emissions at satellite altitude: some properties and modelling using Monte-Carlo simulations.
12	L. Sorokin	High-Energetic Radiation from Lightning and Laboratory Spark Discharge
13	M. Stanbro	Classification of Terrestrial Electron Beams using Mirrored Pulses
14	A. van Deursen	In flight measurement of Terrestrial Gamma-Rays

Perturbations of the atmosphere/ionosphere induced by thunderstorms

15		
16	C.L. da Silva	Air heating and infrasound radiation in sprites
17	C. Rutjes	Ionization due to extensive air showers in humid air
18	G. Sátori	Possible relation between the tropical lightning chimneys and the wavenumber-4 structure in the thermosphere/ionosphere
19	R. Yaniv	Meteorological and diurnal variation of the vertical conduction current density and fair weather E-field in the Negev desert, Israel

Current and future space projects: objectives, instrumentation and expected impacts

20		
21		
22	T. Farges	MicroCameras and Photometers (MCP): the optical instrument on board TARANIS
23	I.A. Golovanov	RELEC Space Mission for Relativistic Electron Precipitation and TLE study
24	C. Muller	B.USOC role in the ASIM operations on the ISS
25	M. Offroy	Characterization of lightning with ISUAL data in order to identify the Transient Luminous Events of the TARANIS mission
26	A. Orr	ESA's Atmosphere-Space Interactions Monitor (ASIM) for the ISS
27	R. Singh	Ground based support for ASIM and TARANIS space missions over Indian region

Friday 27 June

Current and future space projects: objectives, instrumentation and expected impacts

9:00 – 9:30	Past and Future challenges of space observations – Y. Yair
9:30 – 10:00	Fermi TGF Observations – M. Briggs
10:00 – 10:30	*Coffee break*
10:30 – 11:00	AGILE – M. Marisaldi
11:00 – 11:30	GLIMS – M.Sato
11:30 – 12:00	TARANIS – J.L. Pinçon
12:00 – 12:30	ASIM – T. Neubert
12:30 – 14:00	*Lunch*
14:00 – 14:15	New class of RHESSI TGFs - N. Kelley
14:15 – 14:30	Comparison of global RHESSI and AGILE TGFs distributions and analysis of all AGILE satellite passes over South America. 2009-2012 period. - F. Fabró
14:30 – 14:45	Automatic 0+ Whistler Detector Deployed on board the TARANIS Satellite - A.J. Compston
14:45 – 15:00	Chibis-M observations of VHF and VLF/ELF emissions from lightning discharges - D.I. Vavilov
15:00 – 16:00	Poster session # 2 (Same posters as Thursday)
16:00 – 16:30	*Summer school closing*
16:30 – 18:30	
18:30 – 19:30	*Conference open to the public*