

SCIENTIFIC PROGRAMME

Workshop on Coupling of Thunderstorms and Lightning Discharges to Near-Earth Space

23-27 June 2008, University of Corsica, Corte, France

Saturday: 21 June 2008

Arrival

Sunday: 22 June 2008

Arrival

16:00-20:00 Registration

Monday: 23 June 2008

08:00-08:45 Registration

09:00-09:15 Welcome, Background behind Workshop, Agenda, etc.

Chair: Tai-Yin Huang

09:15-10:00 *Opening Lecture 1* "TLEs: Combining Observations, Simulations, Theory and Instrument Technical Aspects" by Torsten Neubert [Invited Talk]

10:00-10:45 *Opening Lecture 2* "The World of TGFs" by David Smith [Invited Talk]

10:45-11:15 *Coffee/Tea Break*

SESSION 1: "Thunderstorms and Lightning"

Chair: Christian Hanaise

11:15-11:45 "Fundamentals of Cloud Electrification and Lightning, with Practical Applications in African Observations" by Earle Williams [Invited Talk]

11:45-12:05 "On the Role of Electric Field Changes when calculating Thunderstorm Currents" by Yuri Shlyugaev

12:05-12:25 "Improvements in the WWLLN Network: Growing Detection Efficiencies for "Big Lightning" Events" by Craig Rodger

12:30-14:00 *Lunch*

Chair: Martin Fullekrug

14:00-14:20 “Sprite and Lightning Infrasound Measurements during the 2005 Eurosprite Campaign” by Thomas Farges

14:20-14:40 “Modelling Electric Fields above Thunderstorms produced by Tropospheric and High-Altitude Lightning” by Anna Odzimek

14:40-15:00 “Balloon Borne DC and AC Electric Measurements in the Vicinity of Tropical Convective Clouds” by Jean-Jacques Berthelier

15:00-15:30 “Gravity Waves produced by Thunderstorms” by Elisabeth Blanc [Invited Talk]

15:30-16:00 *Coffee/Tea Break*

16:00-16:20 “Characteristics and Activity of Storms associated with TLEs Production during Eurosprite Campaigns: Statistics and Case Studies” by Serge Soula

16:20-16:40 “Investigations of Lightning-Induced Sudden Brightening in the OH Airglow Layer observed by ISUAL onboard FORMOSAT-II Satellite” by Tai-Yin Huang

SESSION 3: “Observations and Modeling: TLEs and TGFs and Associated Phenomena”

Chair: Elisabeth Blanc

16:40-17:10 “Streamer Discharges: What lab and PC can tell us about TLE’s and TGF’s” by Ute Ebert [Invited Talk]

17:10-17:30 “X/ γ -rays Detection during Streamer Development” by Vuong Nguyen

17:30-17:50 “Modelling Streamer Interaction” by Alejandro Luque Estepa

17:50-18:10 “Particle and Fluid Models for Streamers and Sparks: Comparison and Spatial Coupling” by Chao Li

18:10-18:45 *Break*

18:45-19:30 *Special Lecture* “Research Topics at the University of Corsica” by Jean-François Santucci [Invited Talk]

19:30-22:00 *Welcome Reception*

Tuesday: 24 June 2008

SESSION 3: "Observations and Modeling: TLEs and TGFs and Associated Phenomena"

Chair: Craig Rodger

09:00-09:20 "Modeling RHESSI TGFs with (more) Realistic Source Locations and Geometries" by Bryna Hazelton

09:20-09:40 "Monte Carlo Simulations of the Temporal Behavior of Terrestrial Gamma Ray Flashes, and Analysis of the BATSE Measurements" by Thomas Gjesteland

09:40-10:00 "Simulation of Terrestrial Gamma Ray and Neutron Flashes" by Leonid Babich [ISTC Collaboration]

10:00-10:20 "High-Energy Electron Beams produced by Terrestrial Gamma-Ray Flashes" by J.R. Dwyer [to be presented by Brian Grefenstette]

10:20-10:40 "The Production Altitude and Time Delays of the Terrestrial Gamma Flashes – revisiting the BATSE Spectra" by Nikolai Ostgaard

10:40-11:10 *Coffee/Tea Break*

Chair: Torsten Neubert

11:10-11:30 "Terrestrial Gamma Flashes Candidates detected by the AGILE Satellite" by Fabio Fuschino [to be presented by Francesco Longo]

11:30-11:50 "The Diffuse Shape of TGFs as a Function of Altitude and Location" by Paul Henry Connell

11:50-12:10 "Characteristics of Gigantic Jets and their Parent Thunderstorm Systems" by Oscar van der Velde

12:10-12:30 "Central European TLE Observations from Hungary in 2007" by József Bór

12:30-14:00 *Lunch*

Chair: Fernanda Sao Sabbas

14:00-14:20 "Fast 2-D Photometric Imaging of Elves" by Robert Newsome

14:20-14:40 "Seismo-Electromagnetic Emission related with Seismic Waves can Trigger TLE" by Leonid Sorokin

14:40-15:00 “Significance of Transient Luminous Events to Neutral Chemistry: Experimental Measurements” by Craig Rodger

15:00-15:20 “Seeking Sprite Signatures in MIPAS/ENVISAT Measurements of Middle Atmosphere NO₂” by Enrico Arnone

15:20-15:40 “Absolute Luminosity of Sprites Measured by ISUAL/AP” by Yukihiro Takahashi

15:40-16:10 *Coffee/Tea Break*

Chair: Ute Ebert

16:10-16:40 “Relativistic Atmospheric Electromagnetic Signals” by Martin Fullekrug [Invited Talk]

16:40-17:00 “ELF-VLF Emissions registered by DEMETER Satellite in the Vicinity of the Sprite observed at Sniezka” by Jan Blecki

17:00-17:20 “On Remote Sensing of TLEs by ELF/VLF Wave Measurements on board a Satellite” by François Lefeuvre

HANDS-ON TUTORIALS

Chair: Norma Crosby

17:20-17:40 “The 2008 NSI Optical Observatory for Sprite Observations” by Olivier Chanrion

17:40-18:00 “Do-it-yourself – Sprite Hunting System” by Roy Yaniv

EVENING SPLINTER MEETINGS

19:00-20:00 “Common Modelling Efforts” chaired by François Lefeuvre

Wednesday: 25 June 2008

SESSION 4: "Ionospheric and Magnetospheric Effects"

Chair: Earle Williams

08:40-09:10 "Lightning-Induced Effects in the Ionosphere and the Radiation Belts" by Umran Inan [Invited Talk]

09:10-09:30 "SAMPEX Searches for Lightning-Induced Relativistic Electron Precipitation" by Bernard Blake

09:30-09:50 "HF Pulses and VLF V-Shaped Emissions recorded by DEMETER above Powerful Thunderstorms" by Michel Parrot

09:50-10:10 "Lightning Effect on the lower ionosphere deduced from MF recordings" by Thomas Farges

10:10-10:30 "Observations and Implications of Terrestrial Gamma-Ray Flash Electrons" by Brant Carlson

10:30-11:00 *Coffee/Tea Break*

SESSION 5: "Instrumental Techniques"

Chair: Yoav Yair

11:00-11:30 "Space Telescopes Using Optical Micro-Electro-Mechanical Systems Technology" by Il H. Park [Invited Talk]

11:30-11:50 "Portable Sprite Observation System based on IP-Camera" by Leonid Sorokin

11:50-12:10 "Radio Waves Diagnostics of Ionospheric Plasma" by Hanna Rothkaehl

12:10-12:30 "A Nitric Oxide Photometer for ASIM" by Patrick Espy [to be presented by Nikolai Ostgaard]

12:30-14:00 *Lunch*

14:00-19:00 *Excursion to the "Region du Niolu"*

EVENING SPLINTER MEETINGS

Thursday: 26 June 2008

Chair: Han-Tzong Su

SESSION 5: "Instrumental Techniques"

09:00-09:20 "IDEE, The Electron Spectrometer of the Taranis Mission" by Jean-André Sauvaud

SESSION 6: "Current and Future Dedicated Campaigns and Missions"

09:20-09:40 "TARANIS a CNES Scientific Mission - I. Project Progress Status" by Christophe Bastien-Thiry

09:40-10:00 "TARANIS a CNES Scientific Mission - II. Contributions to the Physics of TLEs and TGFs and needed Collaborations" by François Lefeuvre

10:00-10:20 "Long Duration Flights of Balloons for the Study of Stratospheric Chemistry in the Frame of the TARANIS Project" by Jean-Baptiste Renard

10:20-10:40 "The Atmosphere-Space Interactions Monitor (ASIM) for the International Space Station" by Torsten Neubert

10:40-11:10 *Coffee/Tea Break*

Chair: David Smith

11:10-11:40 "Overview of Sprite Campaigns in Brazil" by Fernanda Sao Sabbas [Invited Talk]

11:40-12:00 "JEM-GLIMS Mission" by Mitsuteru Sato [to be presented by Yukihiro Takahashi]

12:00-12:30 "Observations of Winter Sprites in the Eastern Mediterranean: Results from the 2006-2008 ILAN Campaigns" by Yoav Yair [Invited Talk]

12:30-14:00 *Lunch*

14:00-14:30 "Global Survey of TLEs from ISUAL onboard the FORMOSAT-2 Satellite" by Han-Tzong Su [Invited Talk]

14:30-14:50 "Sprite-Sat Project" by Yukihiro Takahashi

14:50-15:20 "Russian Space Missions directed for Energetic Particles Impact on the Earth's Atmosphere Effect Study" by Mikhail Panasyuk [Invited Talk]

15:20-15:50 *Coffee/Tea Break*

POSTER SESSION

Co-chairs: Il Park and Yukihiro Takahashi

16:00-19:00 Poster Session

EVENING SPLINTER MEETINGS

19:00-20:00 “E-CANES” chaired by Christian Hanuise

Friday: 27 June 2008

SESSION 2+7: “Global Electrical Circuit and Lightning Activity in the Solar System”

Chair: Umran Inan

09:00-09:30 “The Global Atmospheric Electric Circuit: an Overview” by Michael Rycroft [Invited Talk]

09:30-09:50 “Modeling Electromagnetic and Quasi-Stationary Electric Fields in the Vicinity of a Thundercloud” by Stanislav Davydenko

09:50-10:20 “Atmospheric Electrification in the Solar System” by Karen Aplin [Invited Talk]

10:20-10:50 *Coffee/Tea Break*

10:50-11:10 “Updated Review of Lightning Activity on Other Planets” by Yoav Yair

11:10-11:30 “Atmospheric Electricity of Rocky and Icy Planetary Environments” by Fernando Simoes

EDUCATION AND PUBLIC OUTREACH SESSION”

Chair: Michael Rycroft

11:30-12:00 “Education and Public Outreach: an Overview” by Norma Crosby

12:00-12:30 “Spectacular Sprites: Teaching Cutting Edge Research in Higher Education” by Martin Fullekrug

12:30-14:00 *Lunch*

PANEL DISCUSSION

14:00-16:00: “Joint Campaigns and Missions” chaired by François Lefevre

16:00-16:30 *Coffee/Tea Break*

COST WG5 SPLINTER MEETING

16:30-19:00 “COST WG5 Splinter Meeting” chaired by Yoav Yair

20:00-24:00 *Workshop Dinner*

Saturday: 28 June 2008

Departure

Organized hike with tour guide in the “La Vallee du Tavignano” [not part of workshop]

Sunday: 29 June 2008

Departure

POSTER SESSION

SESSION 1: "Thunderstorms and Lightning"

"Diurnal Variations of Angular Distribution of Global Lightning Activity calculated from ELF Magnetic Measurements" by Zenon Nieckarz

SESSION 3: "Observations and Modeling: TLEs and TGFs and Associated Phenomena"

"Analytical Estimates of the Dispersion Curve in Planar Ionization Fronts" by Manuel Arrayás [to be presented by José L. Trueba]

"The Effect of Random Charges in Streamers Fronts" by Manuel Arrayás

"Lightning Detection in the VLF/LF Regime and Sprite Observation" by Hans-Dieter Betz [to be presented by József Bór]

"Cellular-Automaton Modeling of Mesospheric Optical Emissions" by Hayakawa [to be presented by Dmitry Iudin]

"Statistics of Sprite Morphology during EuroSprite 2003-2006" by Oscar van der Velde

SESSION 4: "Ionospheric and Magnetospheric Effects"

"Kinetic Effects due to Suprathermal Ionospheric Electrons: a Study of Auroral Arc" by Geraldine Garcia

"Response of Thermal Ionospheric Plasma to Energy Input from Atmosphere during Lightning Discharges" by Elena Séran

SESSION 5: "Instrumental Techniques"

"Advances of two site sprite observations" by József Bór

SESSION 6: "Current and Future Dedicated Campaigns and Missions"

"Results of Tatiana-1 Mission and Plans for Tatiana-2." by G.K. Garipov and Boris Khrenov [to be presented by Il H. Park]

"E-CANES: Toward a Global Research Community in Electromagnetic Coupling of the Atmosphere with Near-Earth Space" by Christian Hanaise

“SPARTAN Sprite-Watch Campaign 2007” by Anna Odzimek

“The Airborne Detector for Energetic Lightning Emissions (ADELE)” by David Smith

SESSION 2+7: “Global Electrical Circuit and Lightning Activity in the Solar System”

“Modelling some Mesospheric Effects of Lightning Discharges” by Anna Odzimek and Michael Rycroft

“Challenging Lightning Detection in Venus by LAC onboard PLANET-C” by Yukihiro Takahashi

“Longitudinal Synchronization of Lightning Activity with Solar Rotation Period” by Yukihiro Takahashi

COST P-18: The Physics of the Lightning Flash and its Effects

Work Group 5 – Mesospheric Transient Luminous Events associated with Lightning

Meeting Program

June 27th 2008, at the University of Corte, Corsica, France¹

Chairperson: Yoav Yair

16:30 “Hardware development for observations of TLEs in Hungary” by József Bór

16:45 “Sprite research in Brazil – an overview (INV)” by Fernanda Sao-Sabbas

17:05 “Historical development of the global circuit concept and its application to future measurements” by Karen Aplin

17:20 “Detection X/gamma-ray during streamer development” by Vuong Nguyen

17:35 “Calibration of CCD cameras for TLE brightness measurements” by Roy Yaniv

17:50 “Modeling of thunderstorm electromagnetic environment (INV)” by Stanyslav Davydenko

18:10 “Marine navigation distortion by lightning” by Martin Fullekrug

18:25 “On the possibility of sprites on other planets” by Yoav Yair

18:40 Adjourn

¹ In Conjunction with the 2nd workshop on Coupling of Thunderstorms and Lightning Discharges to Near-Earth Space