EuroSprite observations 2009-2010

E. Arnone and Eurosprite

Dipartimento di Chimica Fisica e Inorganica, University of Bologna, Italy
EuroSprite2005 (July-Nov): results

- **OPTICAL OBSERVATIONS**: 63 sprite observations from 12 different days (over 120 days of campaign)
  Olivier Chanrion, Danish Space Research Institute, Copenhagen, Denmark; Oscar Van der Velde, Universite Paul Sabatier, Tolouse, France; Carl-Fredrik Enell, Sodankylä Geophysical Observatory, Sodankylä, Finland; Massimiliano Ignaccolo, Dept. of Electronic and Electrical Eng., University of Bath, Bath, UK; Agnes Mika, Department of Physics, University of Crete, Crete, Greece; Peter Berg, Danish Meteorological Institute, Copenhagen, Denmark; Anna Odzimek, Enrico Arnone, Fredrik Boberg, Department of Physics and Astronomy, University of Leicester, Leicester, UK

- **VLF**: VLF electromagnetic wave receiver at South African Astronomical Observatory (SAAO) Arthur Hughes and Andrew Collier University of Natal (UN); VLF electromagnetic narrow-band receiver at Crete description Christos Haldoupis and Agnes Mika University of Crete; Umran Inan and Robert Marshall Stanford University VLF electromagnetic wide-band wave receiver at Orleans Michel Parrot and Francois Lefevre CNRS/LPCE, Orléans Umran Inan and Robert Marshall Stanford University

- **Meteo**: Radar imaging of clouds at Lannemezan, Southern France Serge Soula and Oscar van der Valde, Universite Paul Sabatier; Lightning data description Stephane Pedeboy, Meteorage

- **HF**: HF electromagnetic wave receivers at 3 locations in France and 1 Ionosonde Elisabeth Blanc and Thomas Farges CEA

- **ULF/ELF**: ULF - observations from Finland down to Crete Tilmann Bösinger University of Oulu, Cristos Haldoupis and Agnes Mika University of Crete; Schumann resonance observations from Gabriella Sátori and Jozef Bor Geodetic and Geophysical Resesarch Institute, Sopron, Hungary; ELF - Anna Odzimek from collaborators in Poland.
EuroSprite: 2003-2008 summary

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http://www.electricstorms.net/wiki/EUROSPRITE
EuroSprite 2009-2010 systems
Italian Meteor and TLE Network (IMTN): 26 cameras (+5 soon)
EuroSprite 2009-2010 overview

2003-2008 summary:
730 TLE observations

2009-2010 summary:
159 data entries
1492 TLE observations
EuroSprite 2009-2010 overview

2003-2008 summary:
730 TLE observations

2009-2010 summary:
159 data entries
1492 TLE observations
Italian Gigantic Jet

Observed by IMTN on 12 Dec 2009 close to Corsica

van der Velde et al. 2010 JGR
Observations from France

S. Soula, T. Farges

ELF sprite radiation at 500 km from sprites on Sept. 1 and 2, 2009

ELF radiation

70 km
High-speed video recording
from Catalunya (Spain)
New TLE type? Quickie troll / arrow of trolls:
2\textsuperscript{nd} Aug. 22:34:29.099 UTC

See the related discussion at http://eurosprite.blogspot.com/2009_08_02_archive.html
Optical observations from Sopron

2009 On 11 nights:
278 TLEs: 276 sprites, 2 standalone halos

2010 On 16 nights:
123 TLEs: 120 sprites, 3 standalone halos
Density of observed TLEs per year per square latitude/longitude degree
EuroSprite 2009-2010: towards climatology

DJF

MAM

JJA

SON
EuroSprite 2009-2010: towards climatology

DJF  MAM

JJA  SON

E. Arnone 26 October 2010

Eurosprite 2009-2010 observations - Workshop on TLE's and TGF's, Amsterdam, The Netherlands
OPEN ISSUES:
- Fixed vs. pan/tilt cameras
- Extension to southern Italy, Greece, Eastern Europe
- Lightning activity data
- Prompt response to events (define a strategy?)
- Database: catalogue observations via wiki