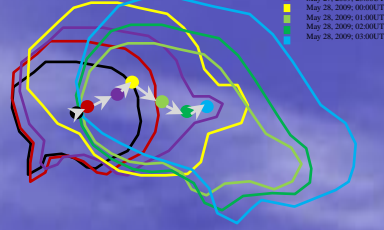
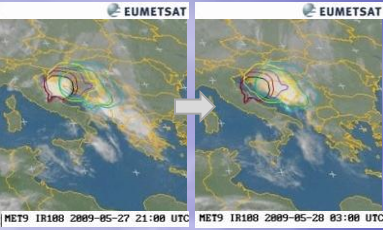


STORM ACTIVITY OVER BALKAN REGION DURING MAY 2009

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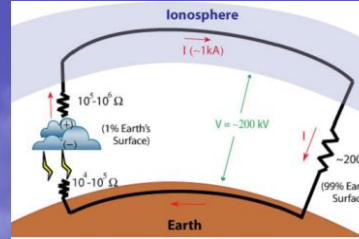
Weather satellite data

Storm activity recorded by EUMETSAT* satellite over Central and Southeast Europe during the night of May 27 – 28, 2009
 (*<http://www.eumetsat.int>)

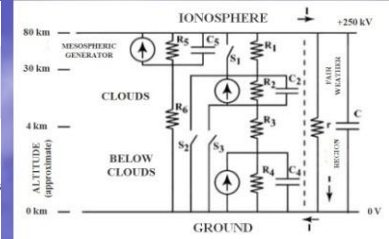


Satellite image of the storm system movement Generalized movement of the storm system's core

Theoretical background



Global electric circuit (Golkowski et al., 2009)

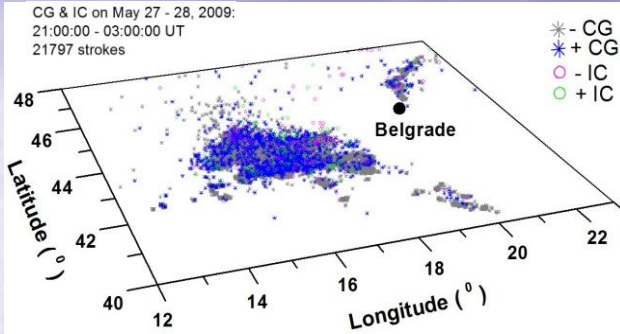


Electric circuit equivalent to global electric circuit (Füllekrug et al. (eds), 2006)

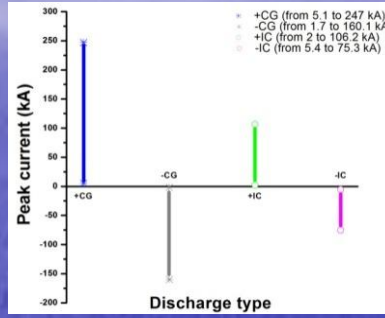
Atmospheric discharges data

Storm activity recorded by EUCLID* Network over area enclosed by coordinates 12° E - 22° E and 40° N - 48° N during the night of May 27 – 28, 2009
 (*European Cooperation for Lightning Detection; <http://www.euclid.org>)

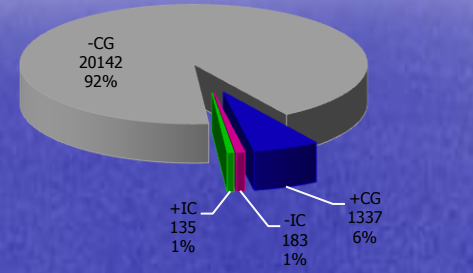
21797 strokes (±CG & IC)



Stroke event distribution – projection on Earth's surface



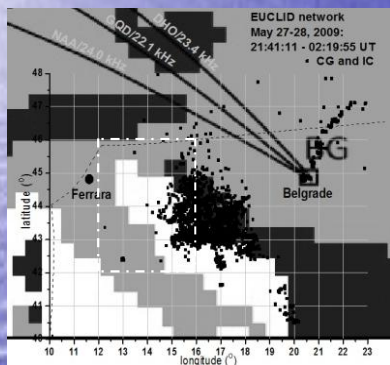
Peak currents distribution



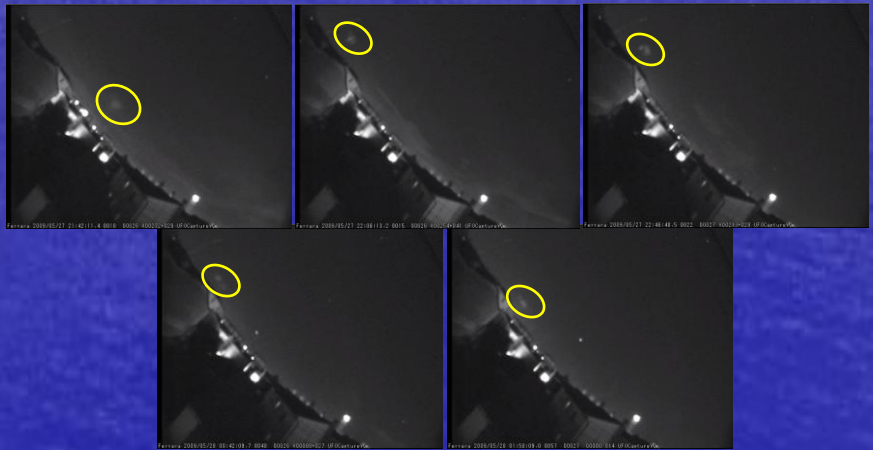
Stroke event distribution – number of reported events

Transient Luminous Events (TLE) data

Registrated by I.M.T.N.* Network over area enclosed by coordinates 12° E - 22° E and 40° N - 48° N during the night of May 27 – 28, 2009
 (*ITALIAN METEOR and TLE NETWORK; <http://www.imtn.it>)



71 sprites & 10 halos



● Ferrara station (44.82° N; 11.62° E) - - - Ferrara station FOW
 ● Belgrade (44.85° N; 20.38° E) - - - Area enclosing registered TLEs
 ■ CG & IC within 2 min interval enclosing each TLE reported

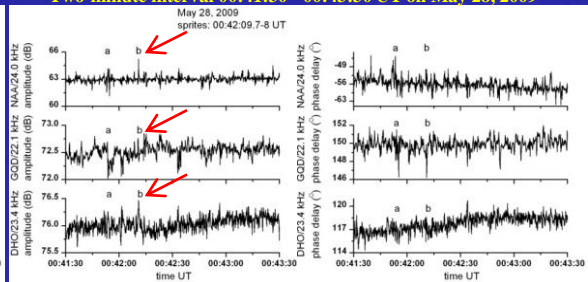
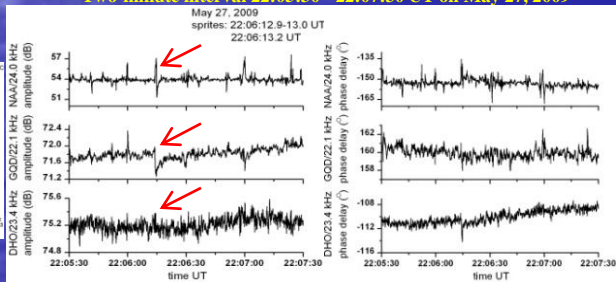
Records of narrowband Very Low Frequency radio signals (VLF)

Obtained by receiving system AbsPAL (Absolute Phase and Amplitude Logger) located in Institute of Physics in Belgrade (44.85° N; 20.38° E) during the night of May 27 – 28, 2009

VLF signal code and frequency	Transmitter location	Emitted power	GCP distance to Belgrade
NAA/24.0 kHz	Maine, USA (44.63° N; 67.28° W)	1000 kW	6547 km
GQD/22.1 kHz	Skelton, UK (54.72° N; 2.88° W)	500 kW	1982 km
DHO/23.4 kHz	Rhandwehn, Germany (53.08° N; 7.62° E)	800 kW	1301 km

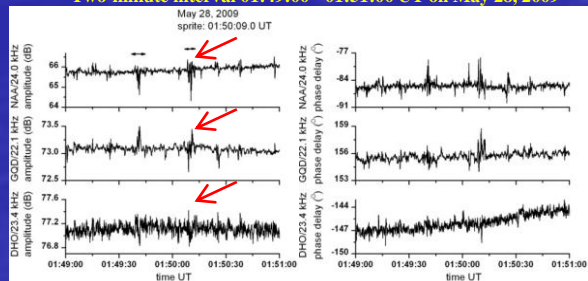
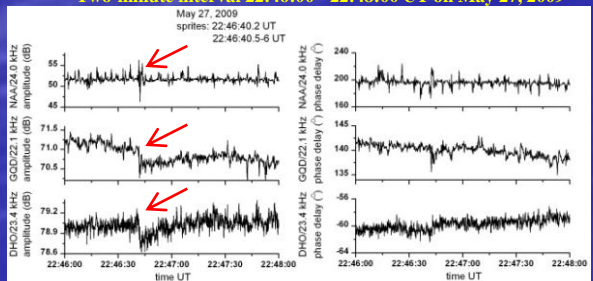
Two-minute interval 22:05:30 - 22:07:30 UT on May 27, 2009

Two-minute interval 00:41:30 - 00:43:30 UT on May 28, 2009



Two-minute interval 22:46:00 - 22:48:00 UT on May 27, 2009

Two-minute interval 01:49:00 - 01:51:00 UT on May 28, 2009



Lightning strokes within area 40° N - 48° N and 10° E - 23° E

Lightning strokes within area 40° N - 48° N and 10° E - 23° E

Lightning strokes within area 40° N - 48° N and 10° E - 23° E

Lightning strokes within area 40° N - 48° N and 10° E - 23° E