

# SAETTA Network

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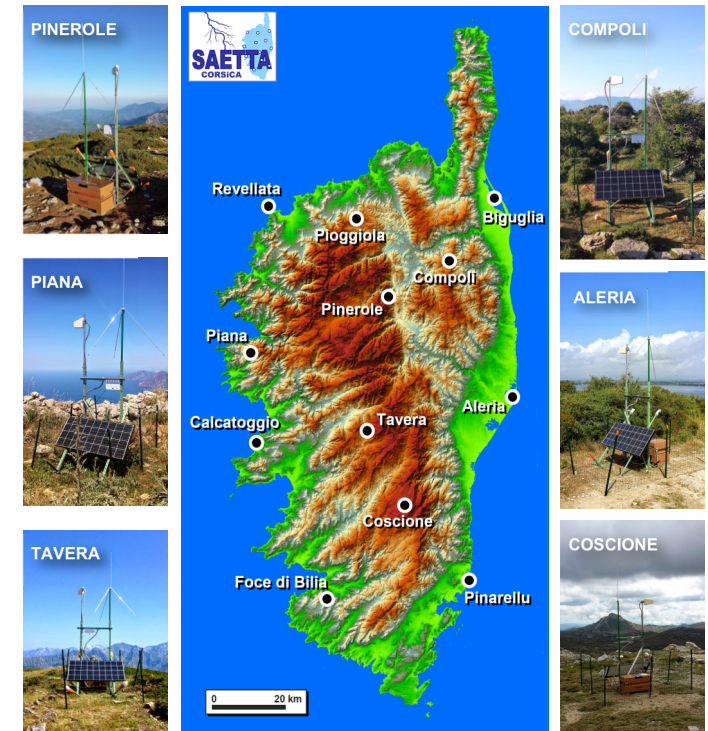
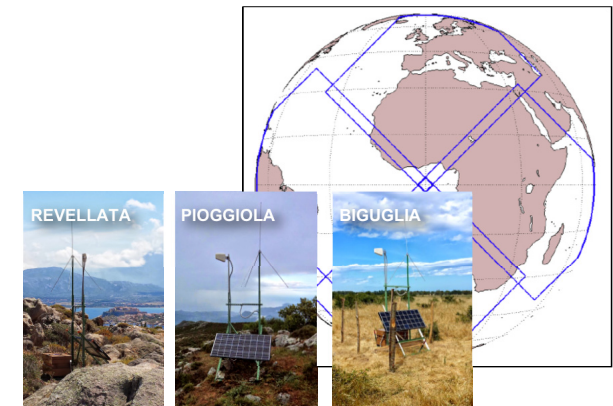
# SAETTA : *Lightning in Corsican*

- SAETTA : **Suivi de l'Activité Electrique Tridimensionnelle Totale de l'Atmosphère** (Monitoring of the 3D total electrical activity of the atmosphere)
- Follow-up of HyMeX SOP1 HyLMA activities dedicated to the monitoring of severe weather events in the South of France (June-November 2012)
- Team: Instrument PIs : S. Coquillat, D. Lambert, S. Prieur  
Scientific PIs : E. Defer, J.-P. Pinty
- Funded by the Collectivité Territoriale de Corse through the Fonds Européen de Développement Régional of the European Operational Program 2007-2013 and the Contrat de Plan Etat Région with the constrain to operate SAETTA in Corsica up to 2020
- Part of the CORSiCA Observatory [<http://www.obs-mip.fr/corsica>]
- SAETTA URL not yet available



# The SAETTA Network

- 12 NMT LMA-technology stations (60-66 MHz, 80- $\mu$ s time resolution)
- 7 (5) on the coastline (in the mountains)
- Stand alone (solar panel; 2 batteries per site, 96h of autonomy)
- GSM communications (monitoring, *real time display at low time resolution*)
- Storage on site (visit every 2-3 months)
- Processing server (8 cores, 2.4 GHz; 10 Tb)
- Data storage on different servers in Toulouse



Name	Alt. (m)	Name	Alt. (m)
ALERIA	24	PIANA	815
BIGUGLIA	11	PINARELLU	40
CALCATOGGIO	331	PINEROLE	1940
COMPOLI	1231	PIOGGIOLA	1272
COSCIONE	1744	REVELLATA	152
FOCE DI BILIA	542	TAVERA	1643

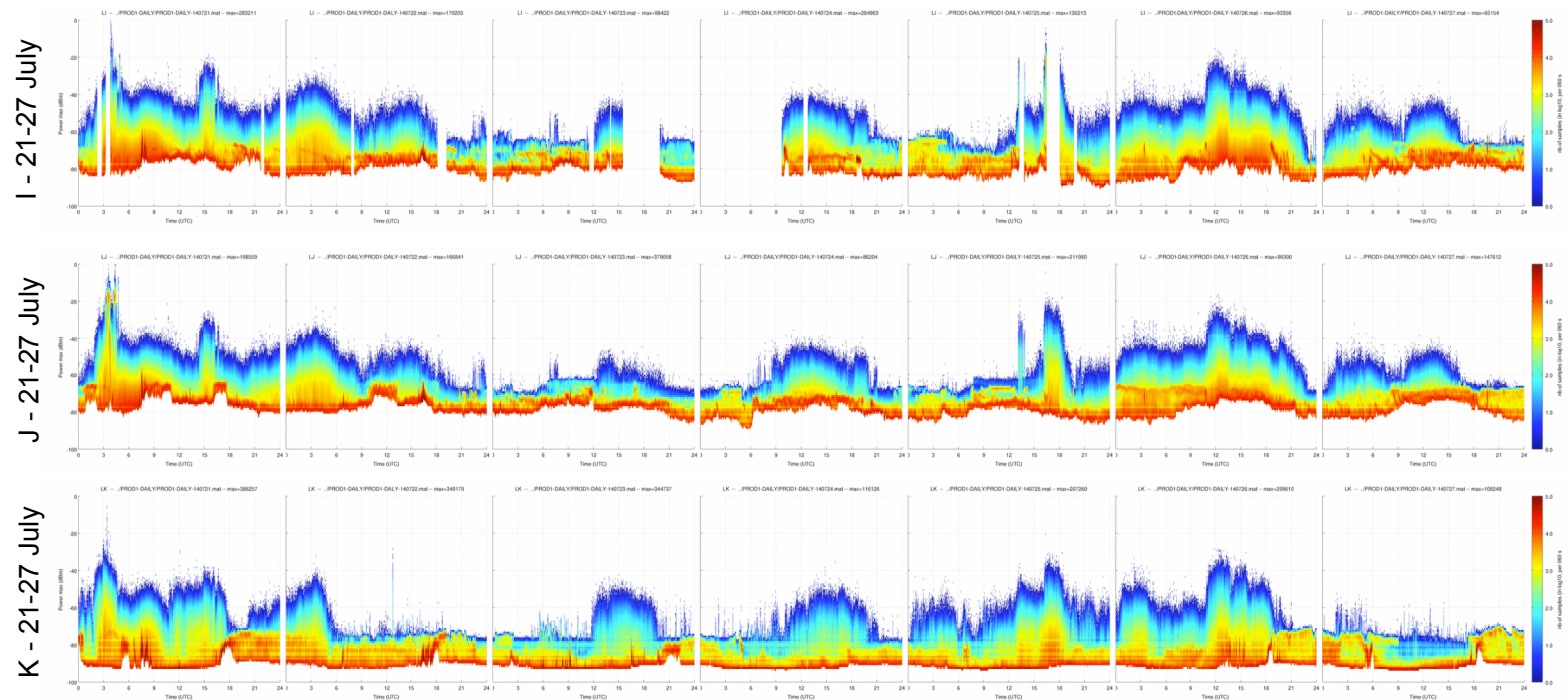
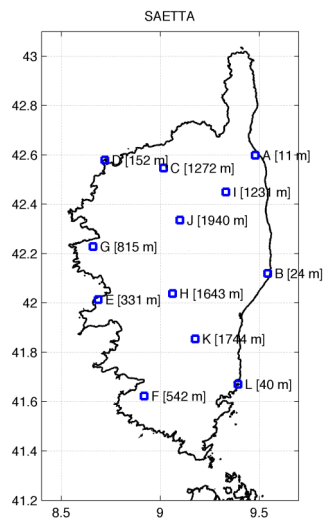






# Quality Control of the SAETTA Data

- Site surveys performed prior the deployment
- Development of a QC protocol to monitor the 12 LMA stations based on real-time and on-site stored raw/reconstructed records underway
- Assessment of the quality of the 2014 SAETTA reconstructions underway
- Comparison with records from other European and global LLSs to perform

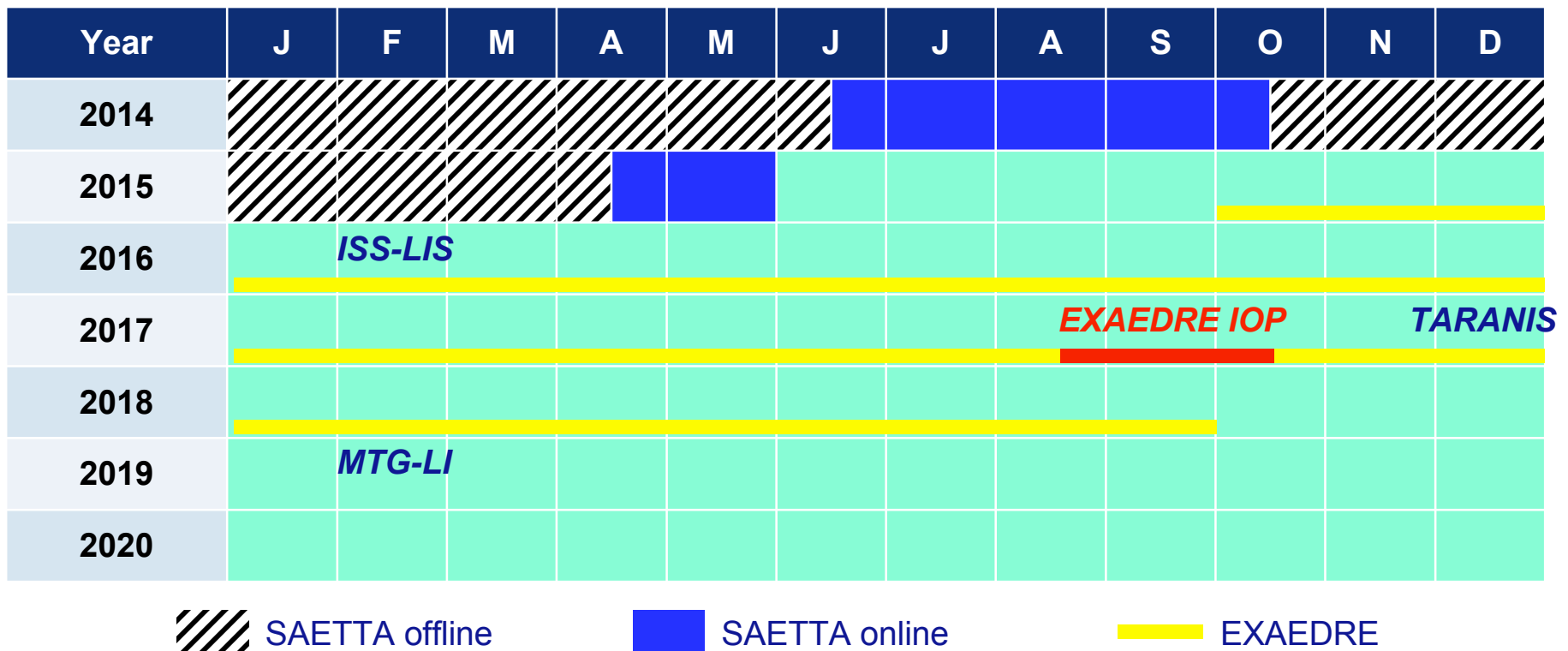






# SAETTA Operations

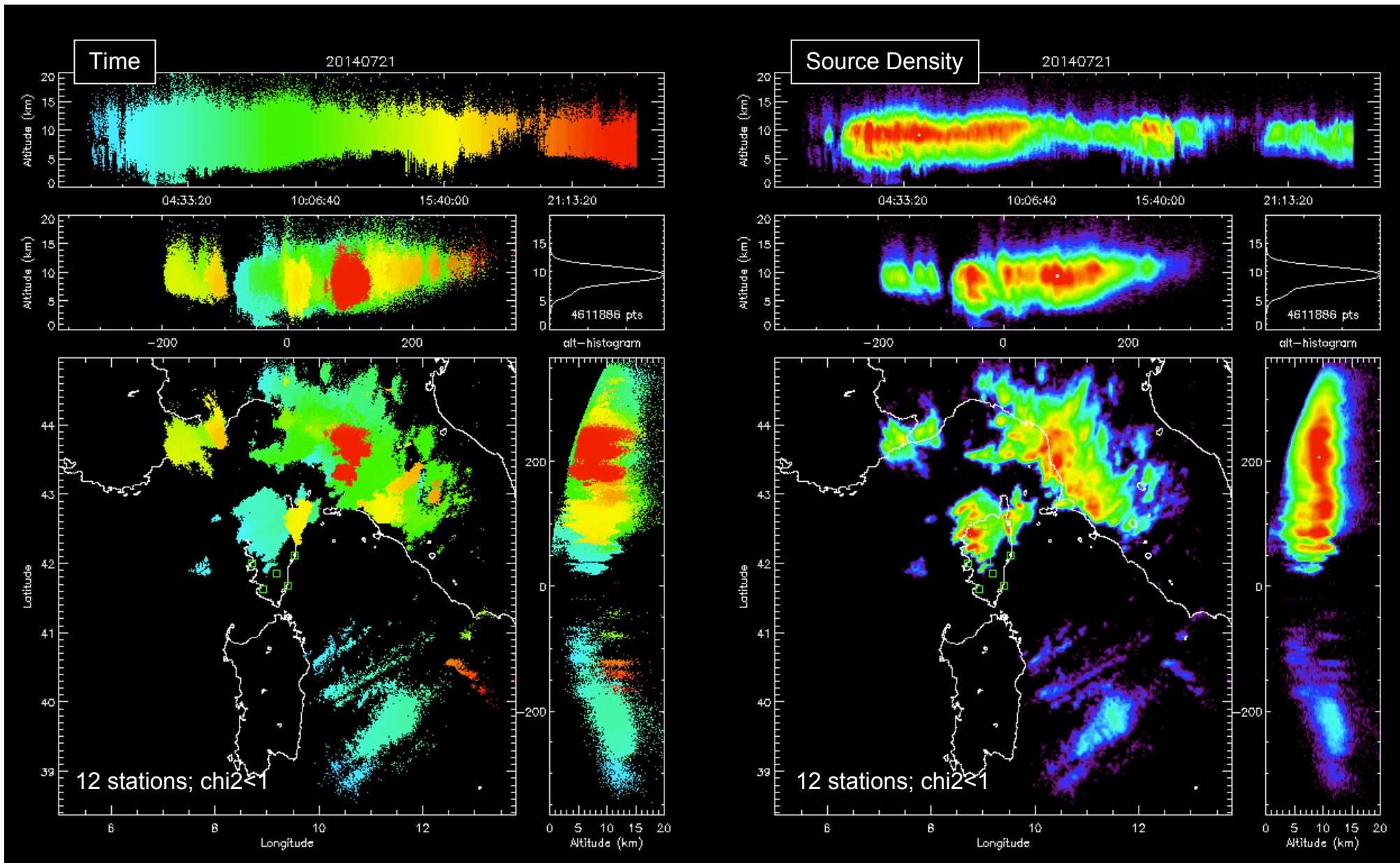
- First SAETTA scientific records on 15 July 2014
- SAETTA turned off during winter 2014 and back online since mid-April 2015
- Full-year operation (with real time) with relocation of highest stations during winter
- Auxiliary instrumentation (e.g. ground-based E field sensors) to deploy





# Examples of SAETTA Observations (1/6)

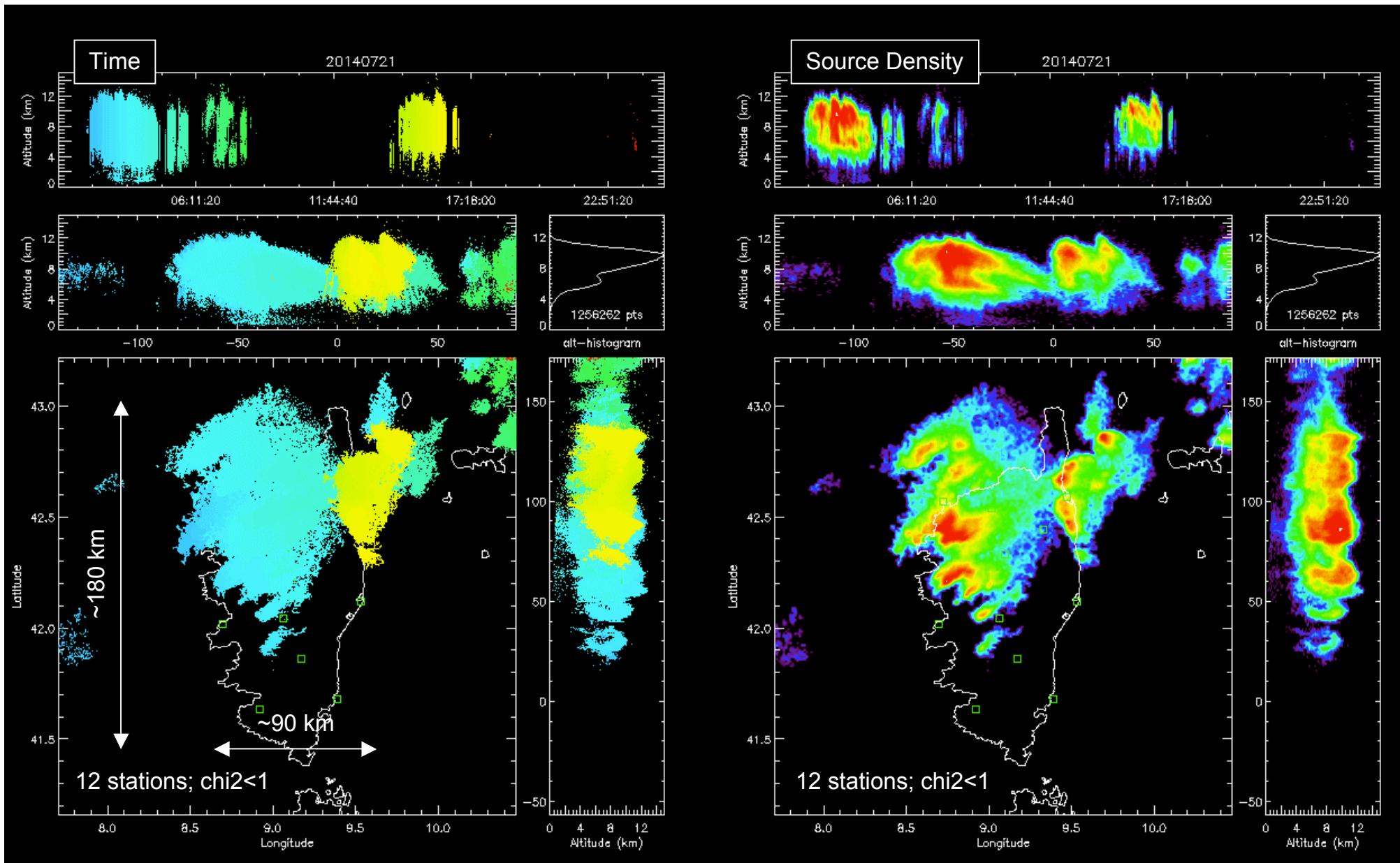
## 21 July 2014 - Regional Scale





# Examples of SAETTA Observations (2/6)

21 July 2014 - Corsica Scale

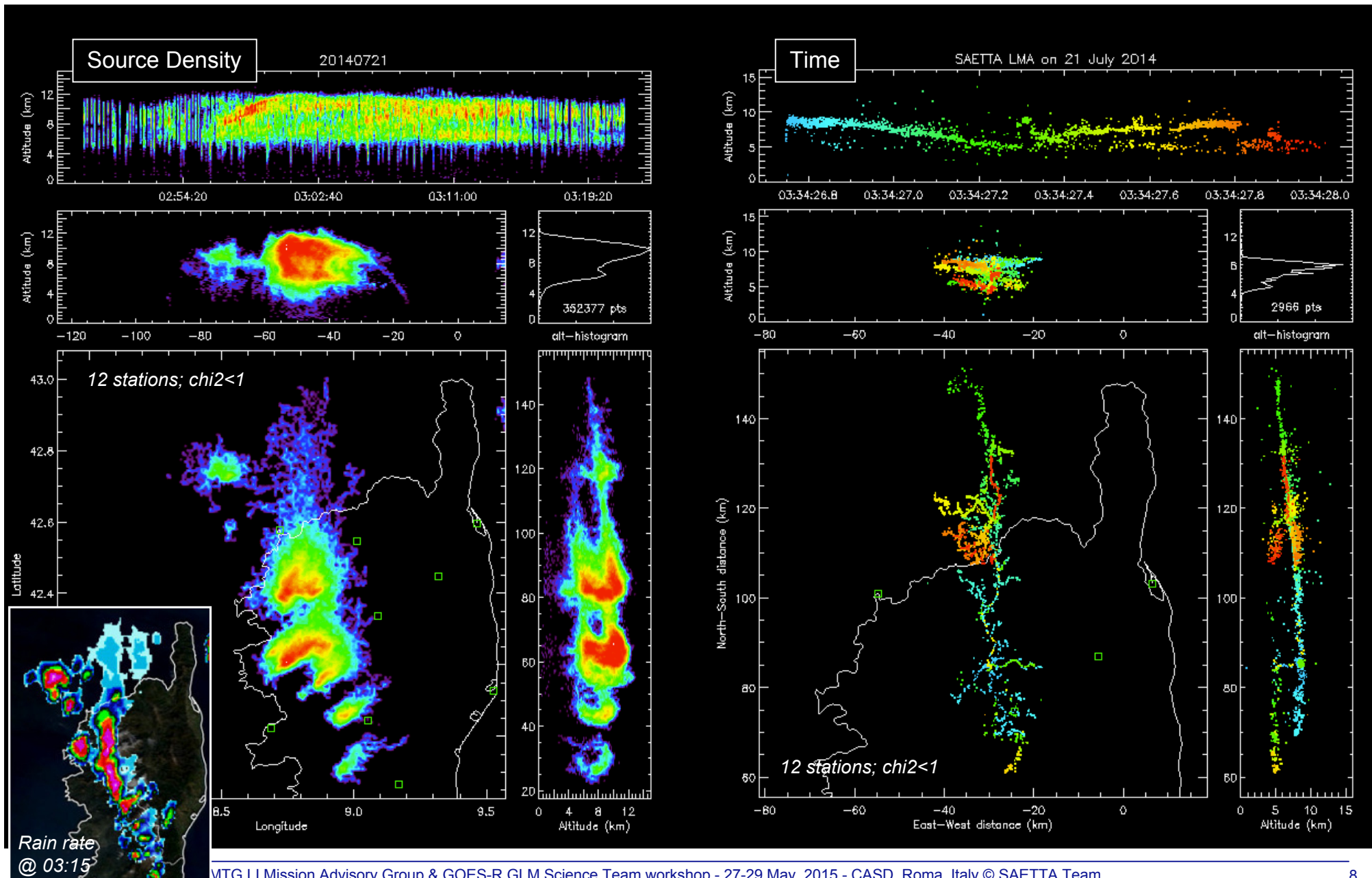






# Examples of SAETTA Observations (3/6)

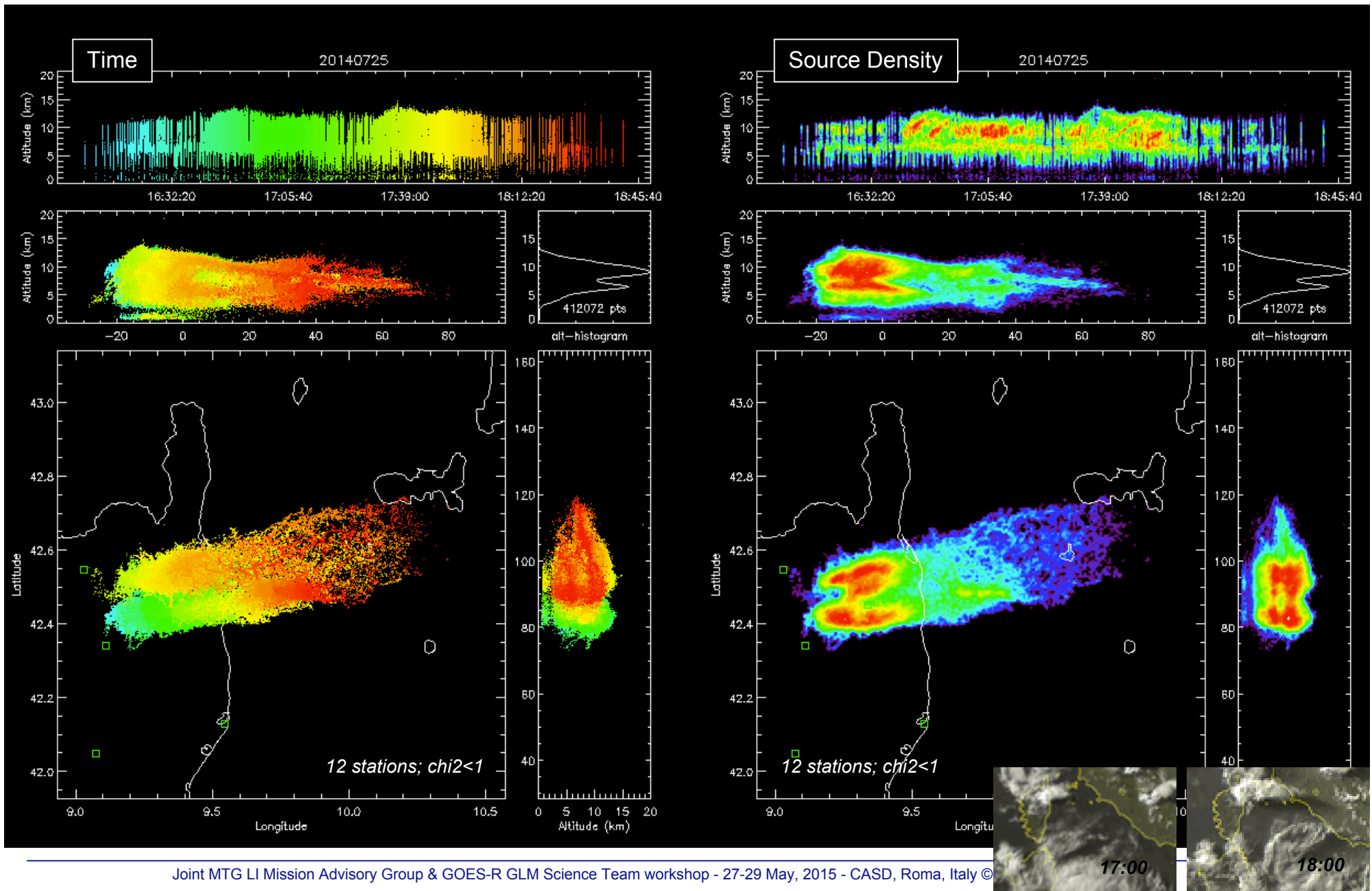
## 21 July 2014 - Storm and Flash Scales





# Examples of SAETTA Observations (4/6)

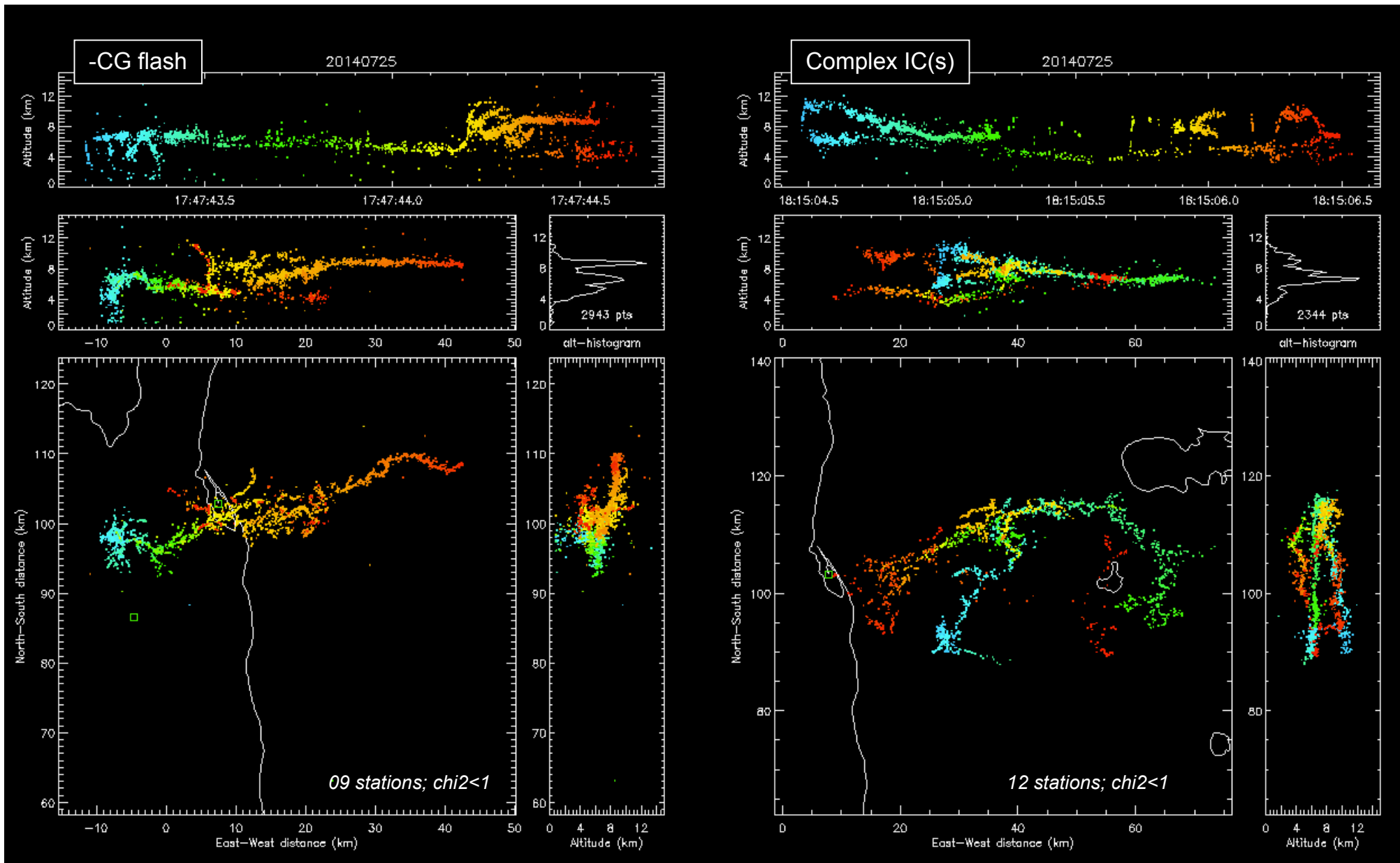
## 25 July 2014 - Storm Scale





# Examples of SAETTA Observations (5/6)

## 25 July 2014 - Flash Scale

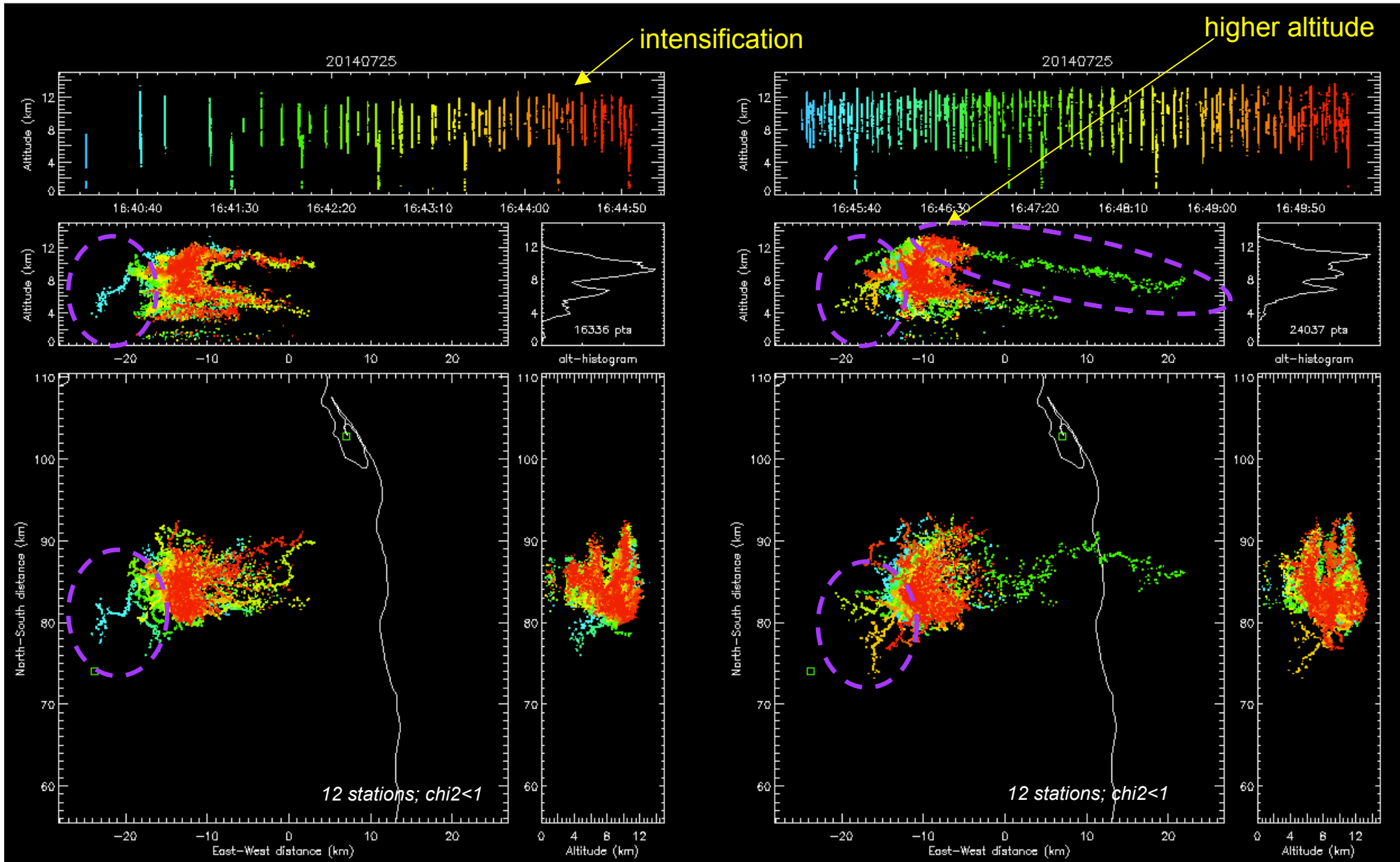






# Examples of SAETTA Observations (6/6)

## 25 July 2014 - Storm Scale Over 5-min Period





# SAETTA Participation in Projects

- **HyMeX Science Team Lightning Long Observation Period activities**  
(Leaders: E. Defer, S. Coquillat, L. Lagouvardos)
- **CNES SOLID** project (Space-based Optical Lightning Detection; PI: E. Defer)
- **LICORNE** project (Lightning and Cosmic Rays in Natural Environment; PI: B. Revenu)
- **EXAEDRE** (*EXploiting new Atmospheric Electricity Data for Research and the Environment; PI: E. Defer*)
  - Submitted to ANR (decision end of June 2015; 3-year project, ~400 ke)
  - Participants: LATMOS, LERMA, LA, GAME (Météo-France), [IS]<sup>2</sup>, Météorage, ONERA, SAFIRE
  - Observational- and modeling-based study of lightning activity in the Corsica region, including a dedicated airborne campaign (14 flight hours of SAFIRE F20 with AMPERA & RASTA)
  - Activities: instrument development and operation, long-term monitoring of total lightning activity, CRM modeling improvement, lightning data assimilation and VSRF applications in preparation for MTG-LI

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