

# Preventive maintenance :

*Monitoring by temperature measurements*

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## WETS'15 Workshop

*Organization: Jicable and Prospective 2100*

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**Rte**

Réseau de transport d'électricité

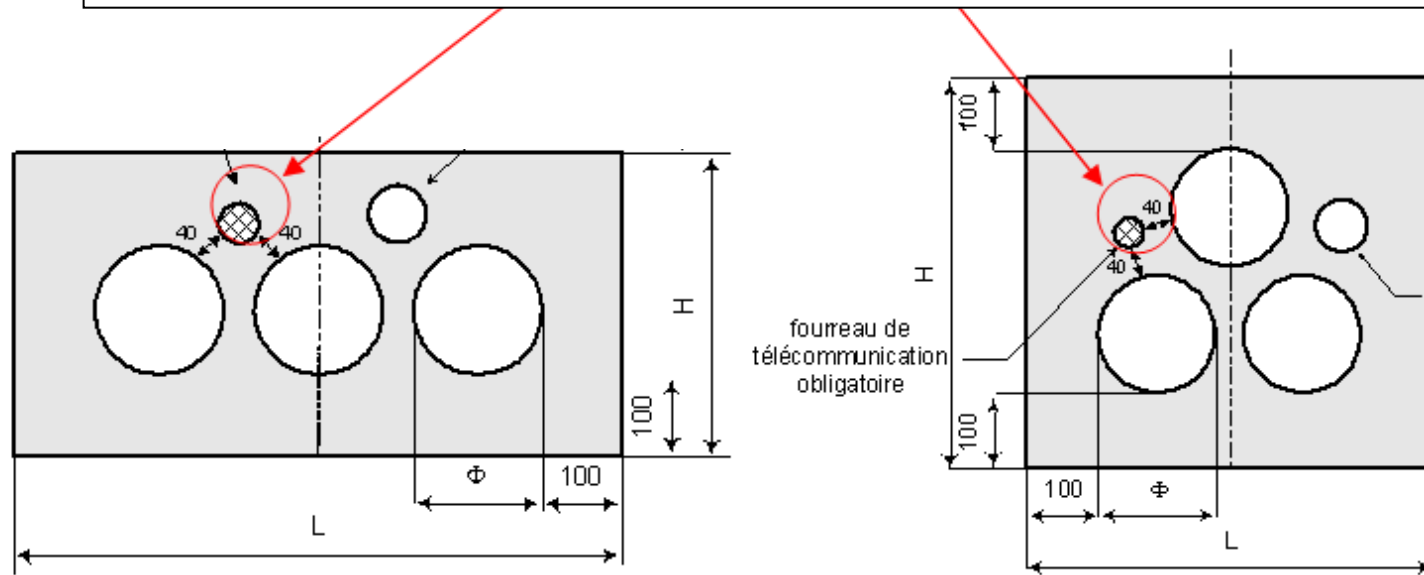


## OF location for thermal measurements

DTS: Distributed Temperature Sensing

→ Hotspot detection near underground cables

Optical Fibers (OF) used for thermal measurements, laid in ducts



Typical laying configurations of cables : flat and trefoil

## Thermal measurements today:

- Systematic 24-hour measurements for every new underground lines (frame-contract) : before and after commissioning = hotspot detection, location and fixing.
- About 30 underground cables per year

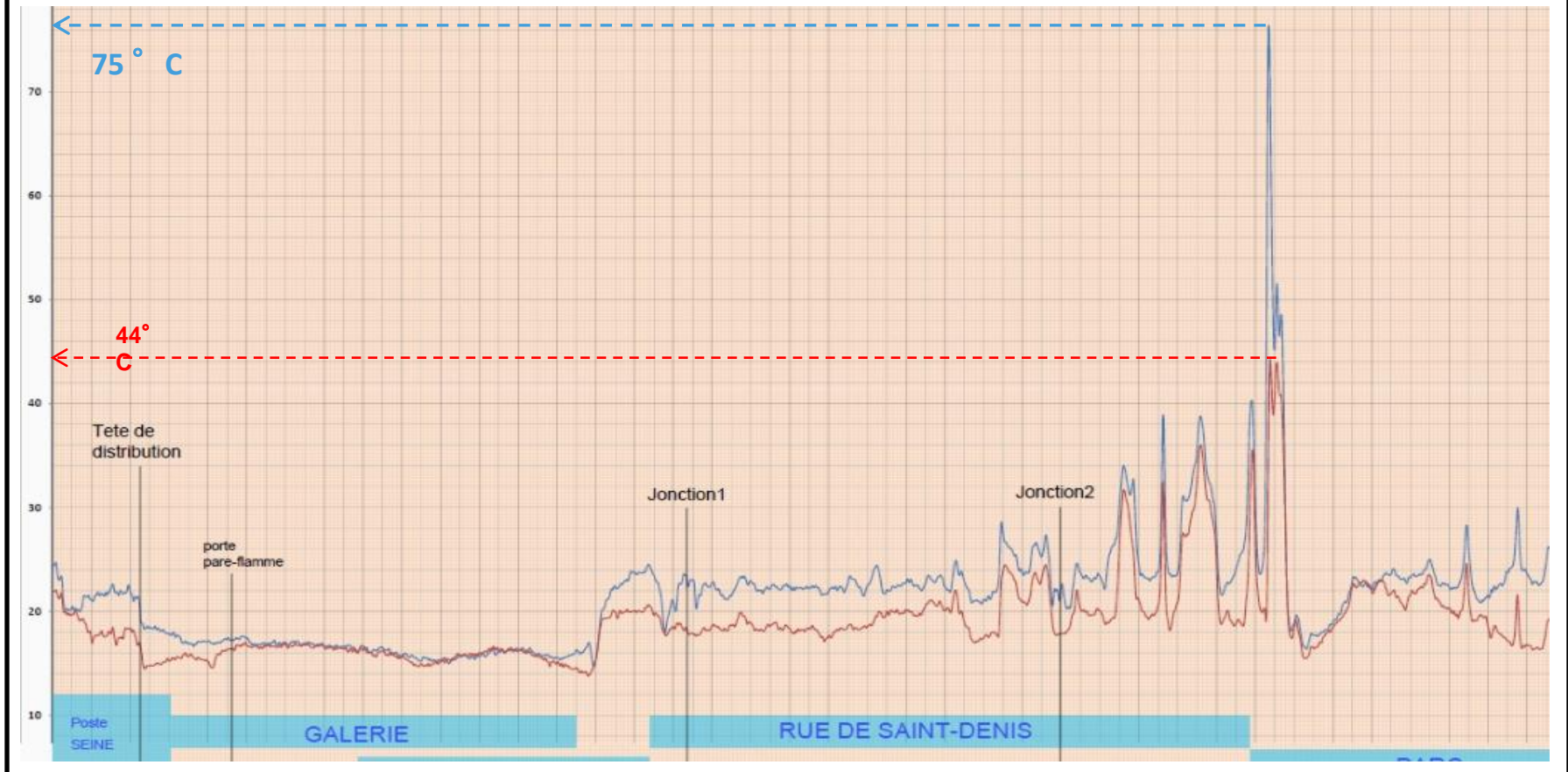
## Prospective uses of thermal measurements:

- Thermal monitoring for some strategic links and projects
  - PACA Safety Net (Boutre-Trans + Biançon-Fréjus)
  - Interconnectors (France-Spain, France-Italy ...),
  - Submarine cables (offshore windfarms)
- Preventive Maintenance rules/actions for these links under consideration
  - Thresholds (temperature limits and/or gradients) to be chosen, in order to detect abnormal change of thermal environment etc ...

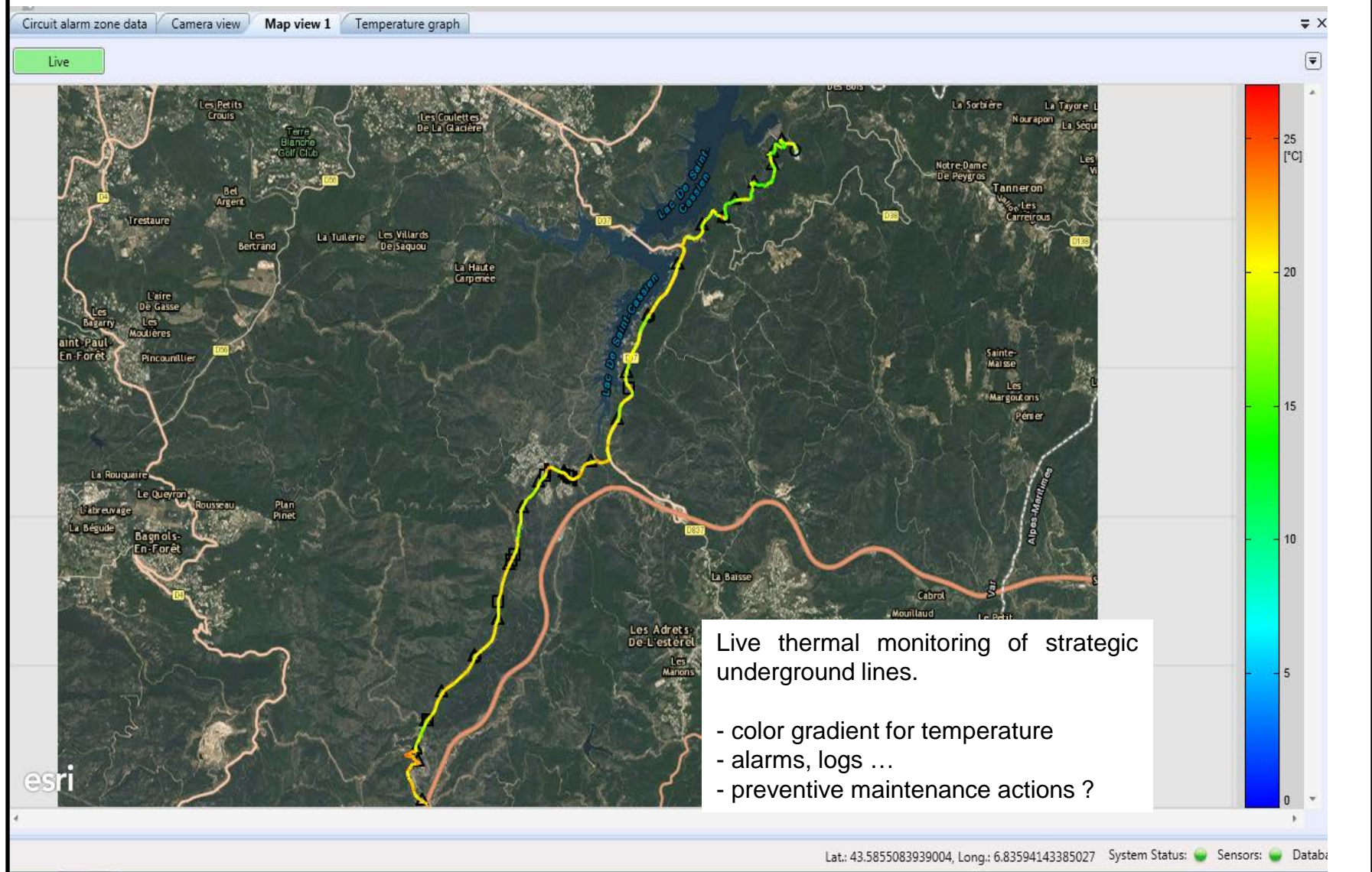
## Limits :

- OF far from cables → core temperature unknown

- Measurement (prior to commissioning) (22/08/2013) → unexpected 75° C hotspot → to identify and fix !
  - Measurement (prior to commissioning) and after dedicated works: 16/09/2013 → Dangerous Hotspot fixed
- Commissioning possible on November 2013







# Thank you for your attention !

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