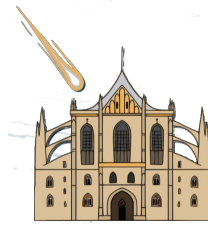


International Meteor Conference

Sep 19th - 22nd, 2024
Kutná Hora, czech Republic



First Meteor Observations with SPADE

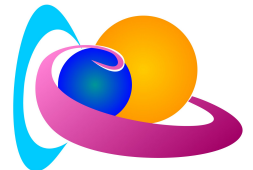
Adrien Manuel Mascarenhas, Lucas Maurice,
Antonio Martínez Picar & Christophe Marqué



Royal Observatory
of Belgium

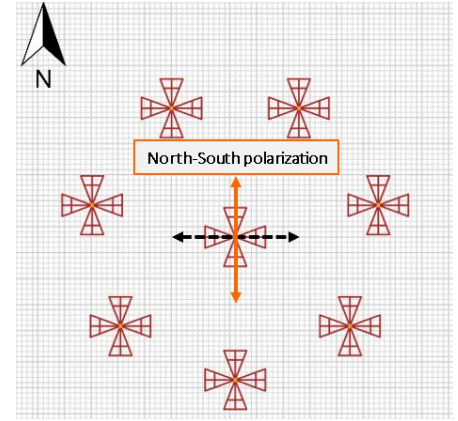


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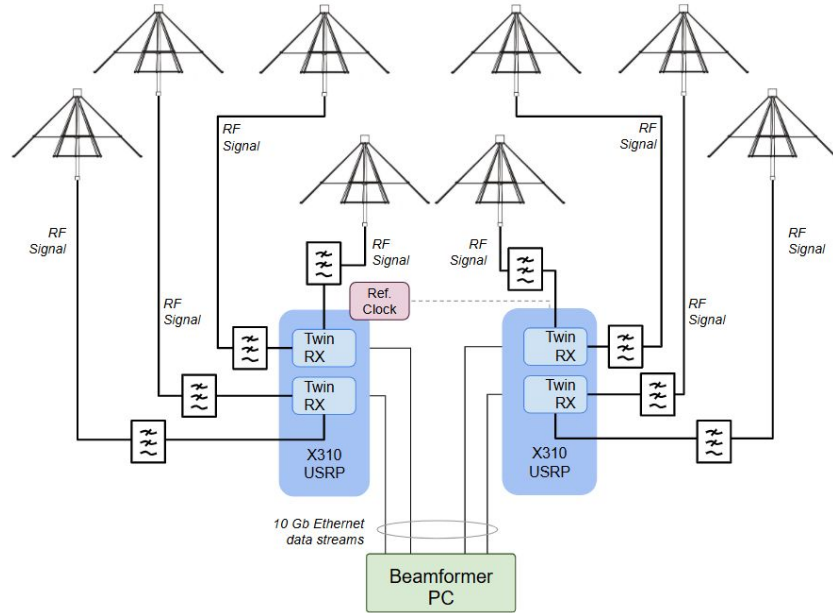
SPADE description

Array description

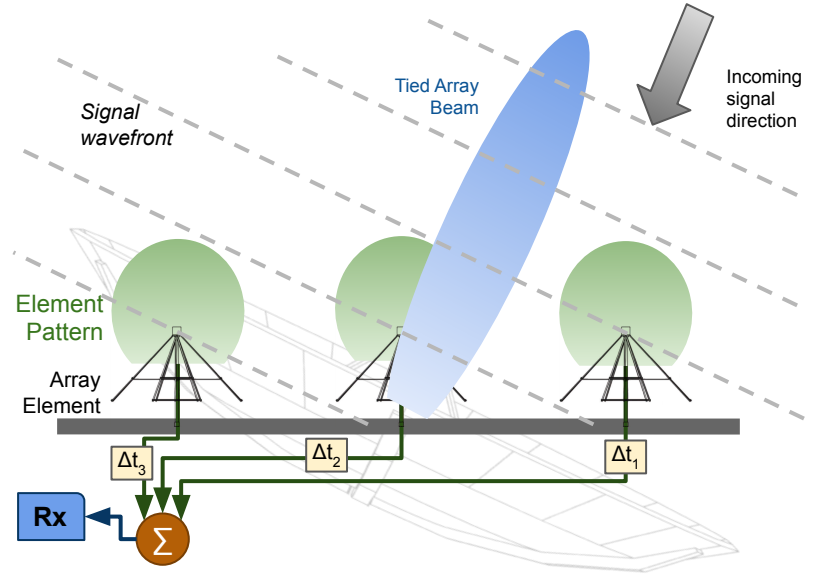


SPADE Mechanism

SPADE Configuration

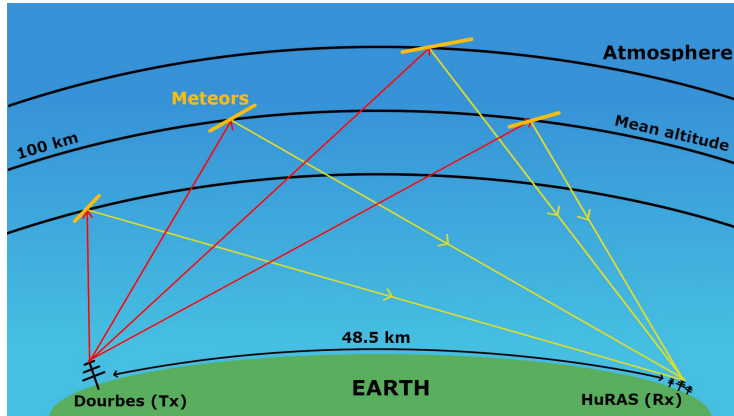


Beamforming technique



Conducting Meteor Observations with SPADE

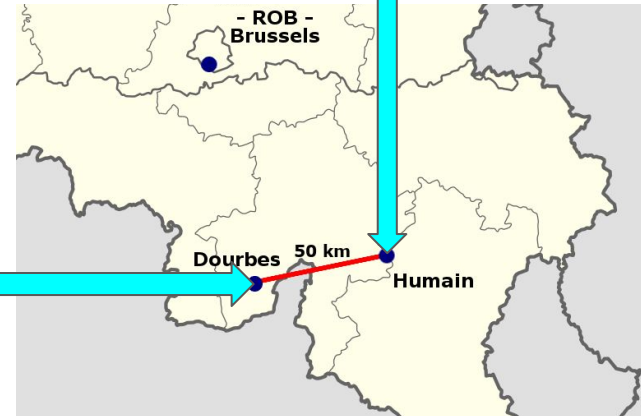
Forward scatter principle



BRAMS - Transmitter [$\sim 50\text{MHz}$]



SPADE - Receiver [20-80MHz]

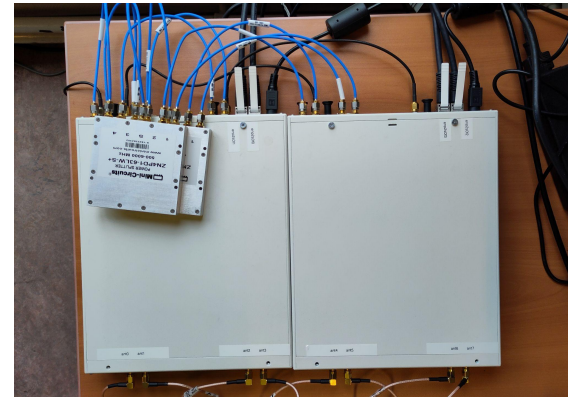


SPADE sampling synchronisation

Ettus USRP X300

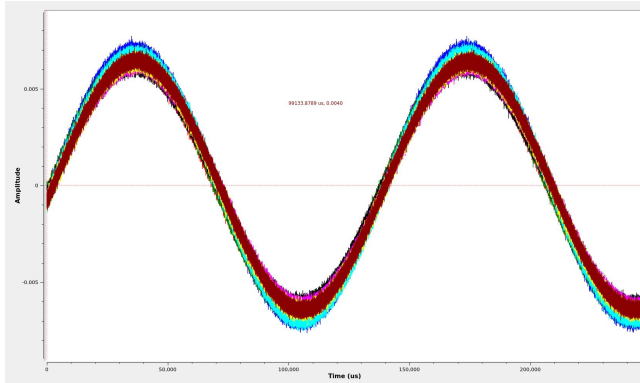


Local Oscillator distribution



SPADE phase synchronisation

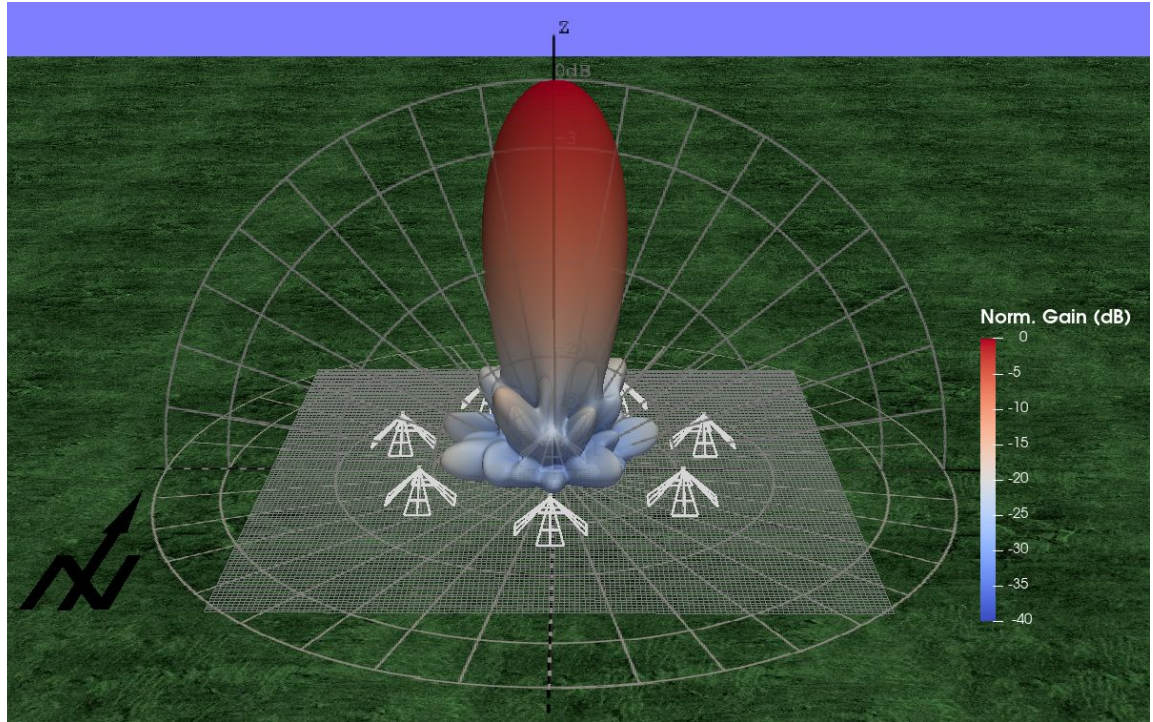
Phases synchronised



In that configuration :

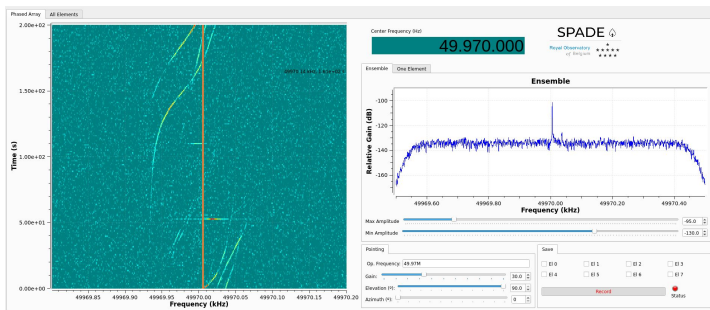
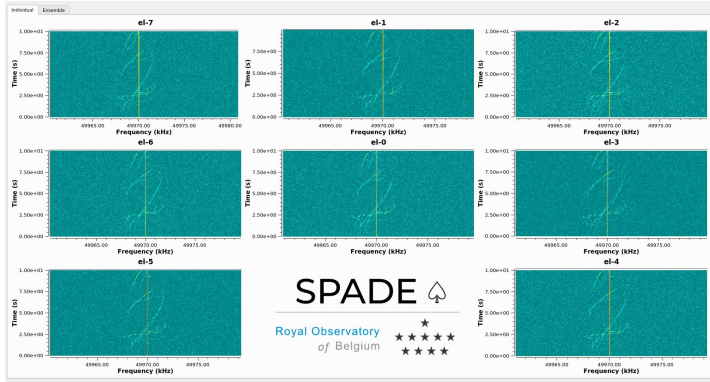
- 3dB beamwidth = 20°
- max gain = 21 dBi

SPADE pattern

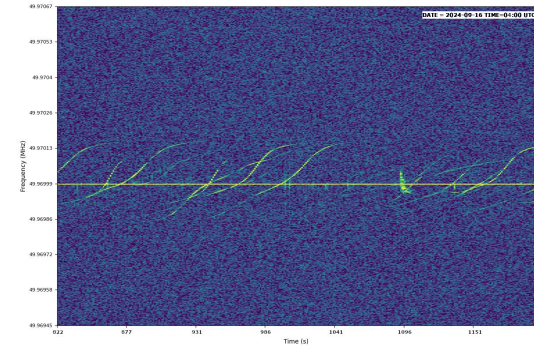
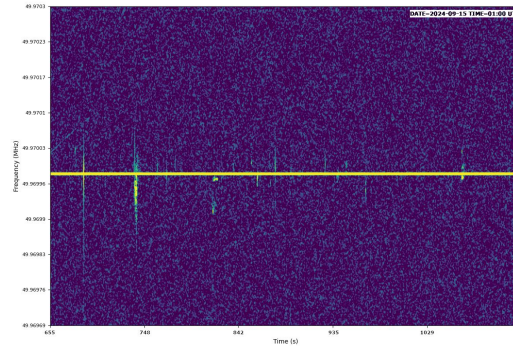
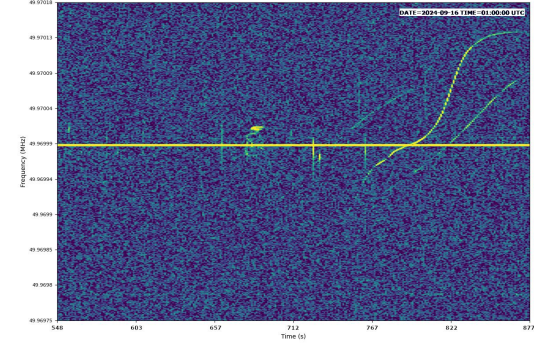
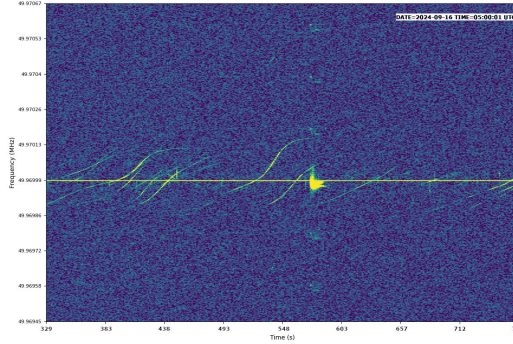


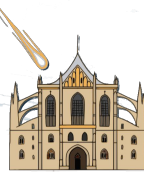
Observations

GNU-Radio interfaces

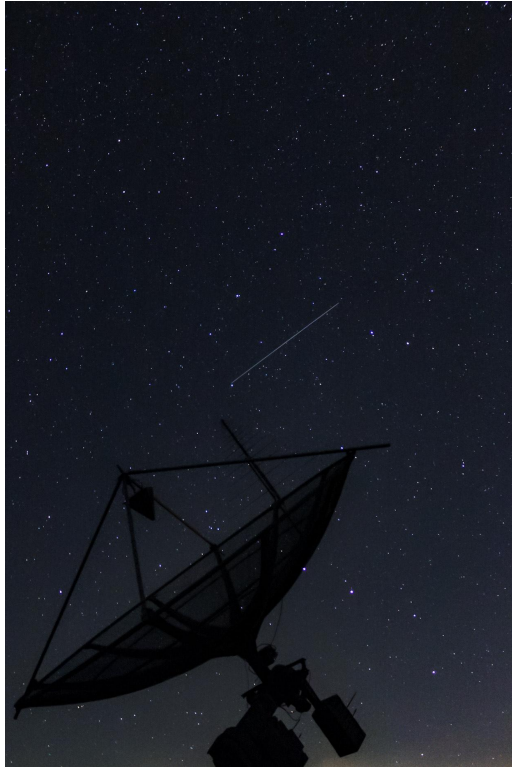


Data from SPADE in spectrograms

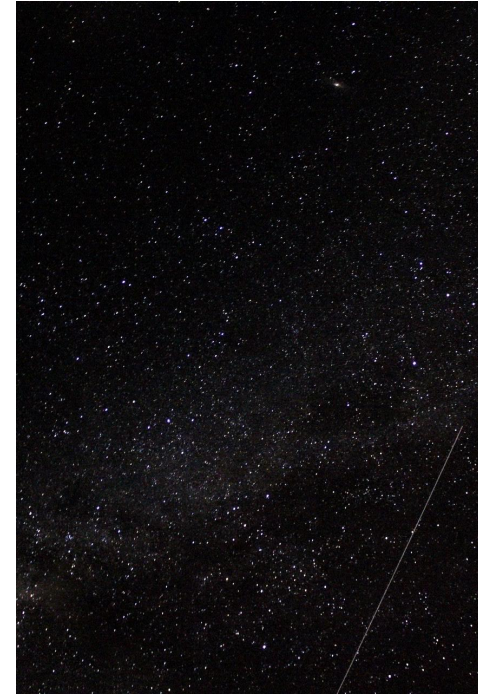




Thank you for listening
Do you have any questions ?



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antonio.martinez@observatory.be



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