

Program Meteor Radio Workshop

30 August 2023 – Euro Space Center – Redu

Detailed program

09h30 : welcome and coffee in the Freedom Room at Euro Space Center

09h45 : Hervé Lamy – **General description of the BRAMS network**

Topic 1 : back scatter vs forward scatter systems.

10h00-10h25 : Gunter Stober – Meteor radar concepts for monostatic, multistatic, and forward scatter - velocity measurements, orbit determination, and radiant mapping

Topics to be discussed : trajectory and speed retrieval, pre-t0 technique, polarization, height ceiling, etc.

Topic 2: Head echoes observations

11h00-11h20 : Johan Kero / Daniel Kastinen – HPLA vs specular meteor radar observations

11h20-11h30 : Chris Steyaert – Three notes about head echoes : Meteor trajectories from head echoes, velocity from single head echo, and 'why no head echoes with negative Doppler'

11h30-11h40 : François Colas – Status of the FRIPON radio network

Topics to be discussed : preliminary head echo studies with BRAMS data

Topic 3 : Automatic meteor detection in spectrograms

12h00-12h15 : Chris Steyaert - Meteor detection on radio spectrograms by means of computer vision

Topics to be discussed : automatic detection of meteor echoes in BRAMS data using moving median filter or CNN

Lunch : 12h30-13h30

Topic 4 : Observability Function and radio meteor fluxes.

13h30-13h45 : Hervé Lamy – Observability Function of the BRAMS network – Status

13h45-14h00 : Christian Steyaert – Combined determination of shower activity and OF

14h00-14h15 : Hiroshi Ogawa – Activity Level Index and radio ZHRr

Topics to be discussed : comparisons between various methods, RMZ, radio meteor fluxes using BRAMS data

Topic 5: Remote sensing of the MLT region using radio meteors

14h45-15h10 : Gunter Stober – Meteor radar wind measurements - mathematical concepts, biases, and implementation strategies

Topics to be discussed : MLT wind measurements using BRAMS data, limitations due height accuracy, relaxation of the homogeneity assumption, impact of number of stations, etc.

15h30-15h50 : Coffee break

Topic 6 : Optical vs radio observations of meteors

15h50-16h10 : Peter Brown - Optical – radar detections with CMOR/CAMO

Topics to be discussed : optical networks available in / nearby Belgium (FRIPON / CAMS / GMN / AllSky7 / EFN) and comparison with BRAMS data, BRAMS observations of fireballs, ionization curves.

Topic 7 : Fireball observations with other techniques

16h40-17h00 : Véronika Barta - Impact of individual meteors on the midlatitude ionosphere during the Leonids and Geminids meteor showers, 2019

Topics to be discussed : observations with ionosonde in Dourbes, comparisons with BRAMS data and other optical fireball networks such as FRIPON, emissions from fireballs.

Topic 8 : Technical aspects

During this session, we will briefly present different receivers, receiving systems, antennas, ... including our MOMSTER system and BRAMS receiving box. A demo with the different system can be arranged outside the Euro Space Center (if weather permits).

17h30-17h40: Hiroyuki Ohata & Sumio Nakane, draftSync Reception System Utilizing FM Broadcasting Signals

18h00-18h30 : Tests outside the ESC (MOMSTER system, KrakenSDR, ...)

18h30 : Departure to the Val-de-Poix Hôtel by car

19h30 : Dinner at Brasserie Val-de-Poix