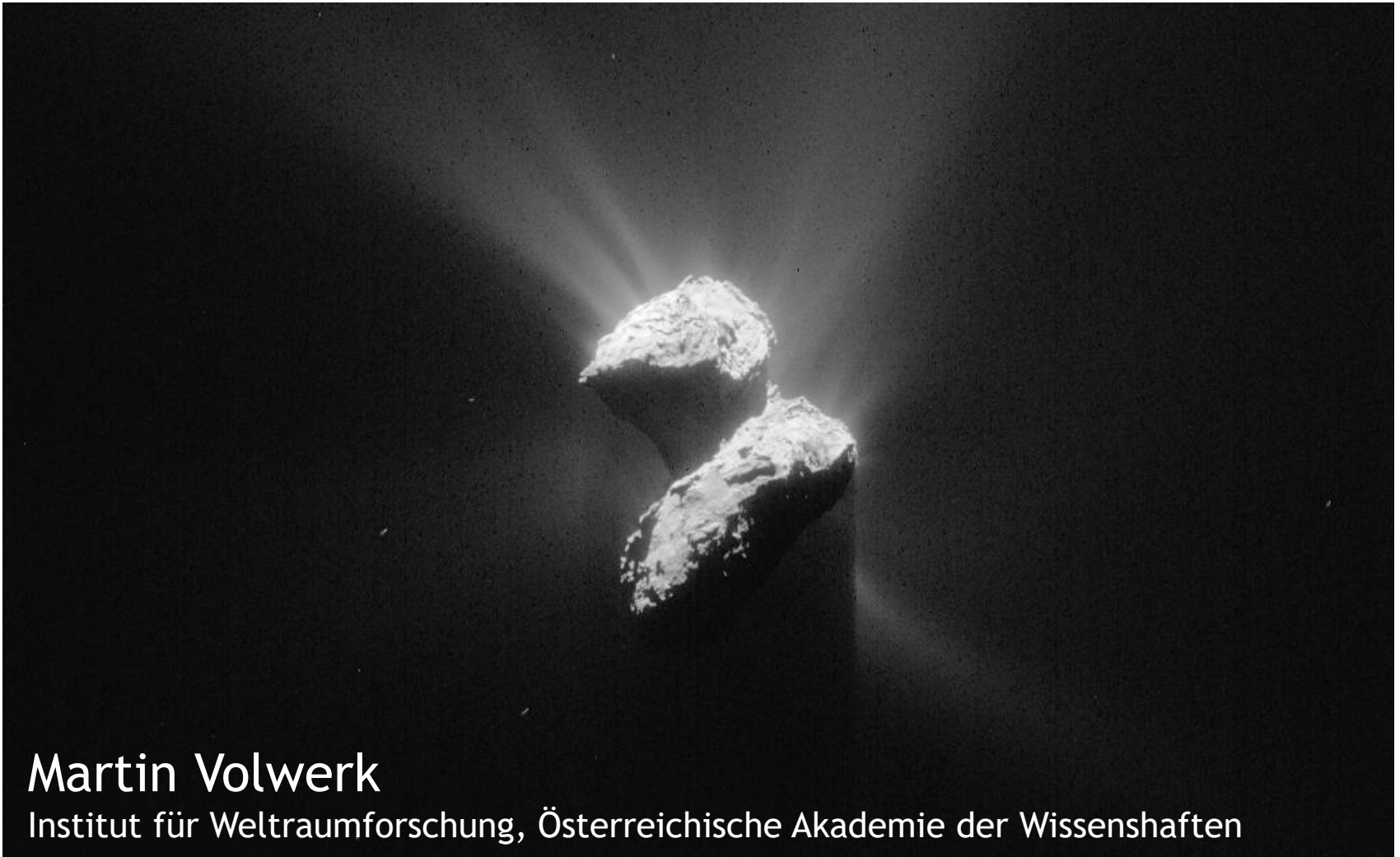


ROSETTA RPC ERGEBNISSE RUNDUM KOMETEN 67P/CG

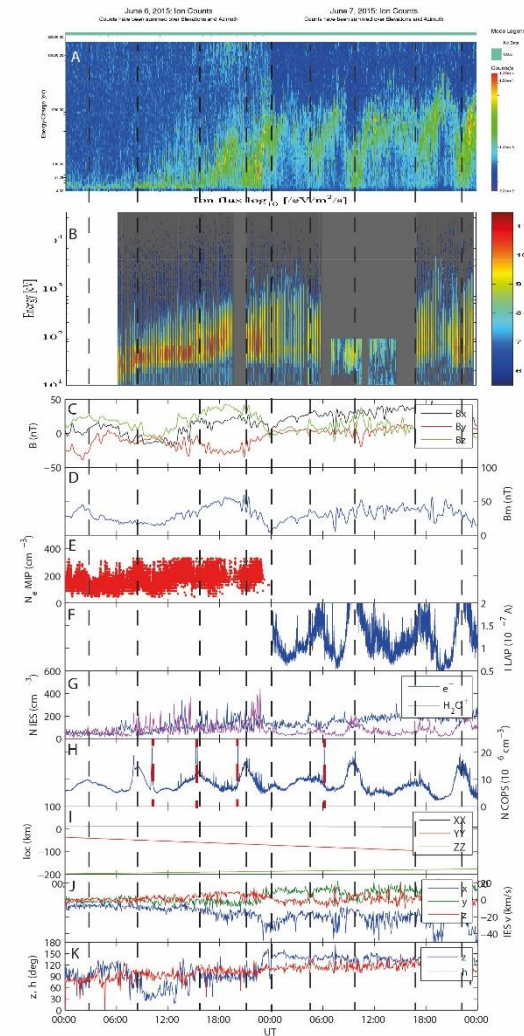


6 - 7 JUNE 2015



Observations at 180 km distance from comet 67P/CG

- “Normally” plasma density follows the neutral density as on 7 June
- On 6 June:
 - increase in magnetic field strength
 - Increase in plasma density, not following neutral density
- External source responsible
 - No solar wind monitor
 - SW propagation model



SOLAR WIND-COMET INTERACT

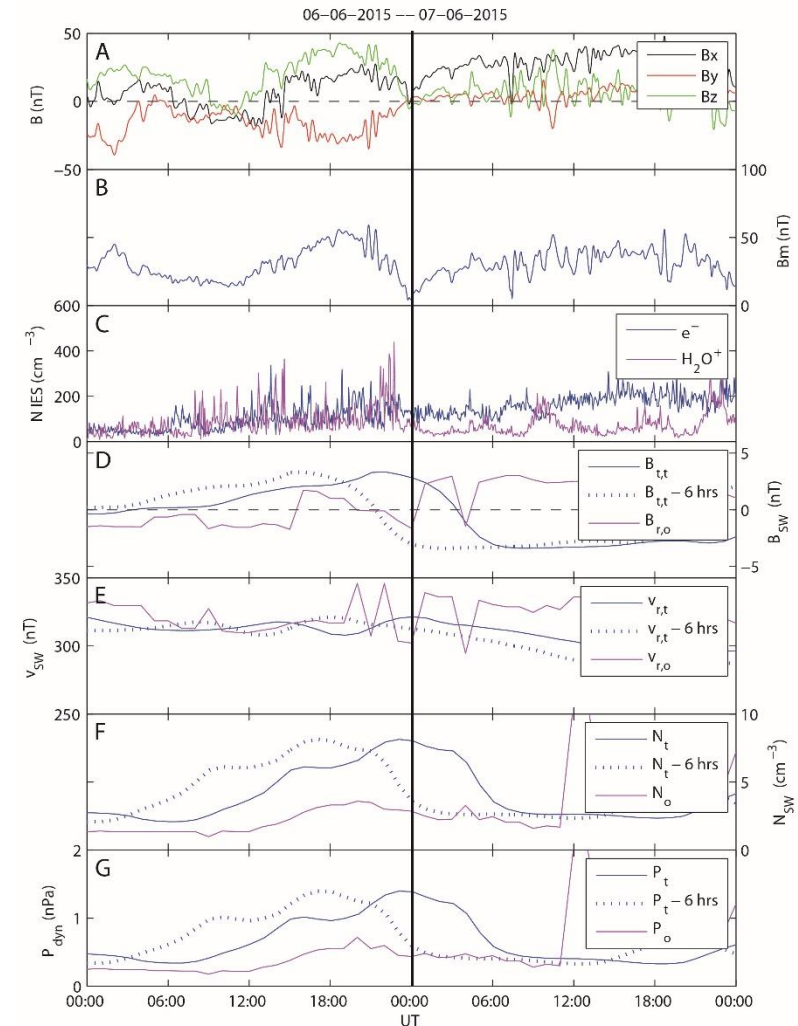


Propagation models of solar wind

- MHD and ballistic models
- SW velocity remains constant
- SW dynamic pressure increases

Increased P_{dyn} interacts with induced magnetosphere

- Compression of magnetosphere
 - Increase of B field
- Higher SW density
 - Higher number of electrons enter induced magnetosphere
 - More collisional ionization

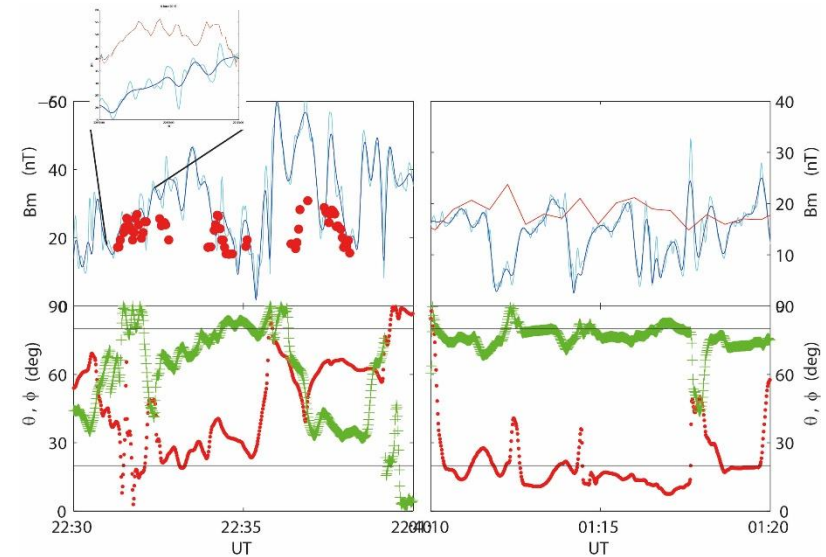


MIRROR-MODE WAVES



Ionisation of cometary gas (H₂O)
leads to ion pick-up

- Pick-up ions generate a ring-beam distribution
- Unstable for mirror-mode wave generation
 - Quasi-periodic decreases in B with increase in plasma density
- Two kinds of mirror-mode wave
 - From freshly picked up H₂O, close to the comet, small size 1 - 3 gyro radii
 - From picked-up ions far from comet, diffused to Rosetta, large size 10 - 16 gyro radii



M. Volwerk, I. Richter, B. Tsurutani, C. Götz, K. Altwegg, T. Broiles, J. Burch, C. Carr, E. Cupido, M. Delva, M. Dósa, N.J.T. Edberg, A. Eriksson, P. Henri, C. Koenders, J.-P. Lebreton, K. E. Mandt, H. Nilsson, A. Opitz, M. Rubin, K. Schwingenschuh, G. Stenberg Wieser, K. Szegö, C. Vallat, X. Vallières, and K.-H. Glassmeier, Mass-loading, pile-up, and mirror-mode waves at comet 67P/Churyumov-Gerasimenko, *Annales Geophysicae*, submitted, 2015