

# Study of Aerosol Radiative Properties During Long-range Transport of Biomass Burning from Canada to Central Europe in July 2013

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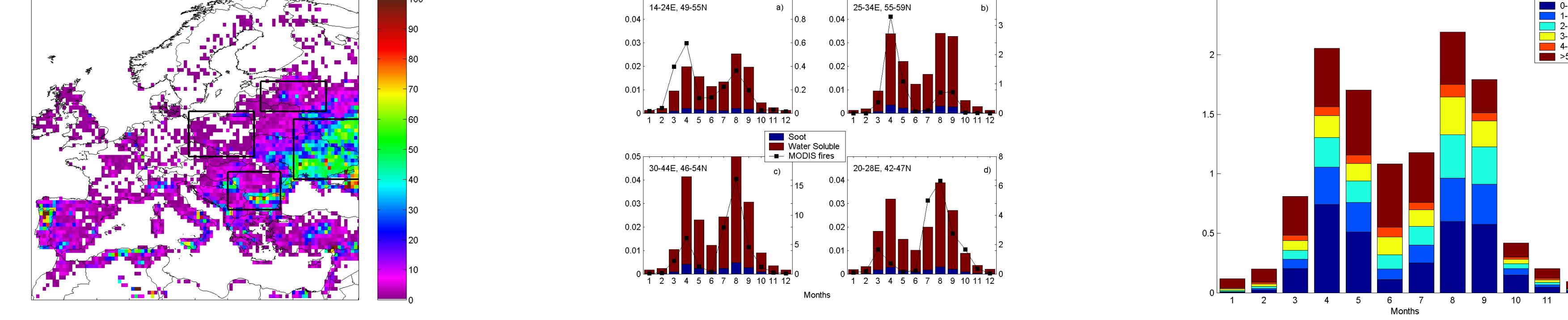
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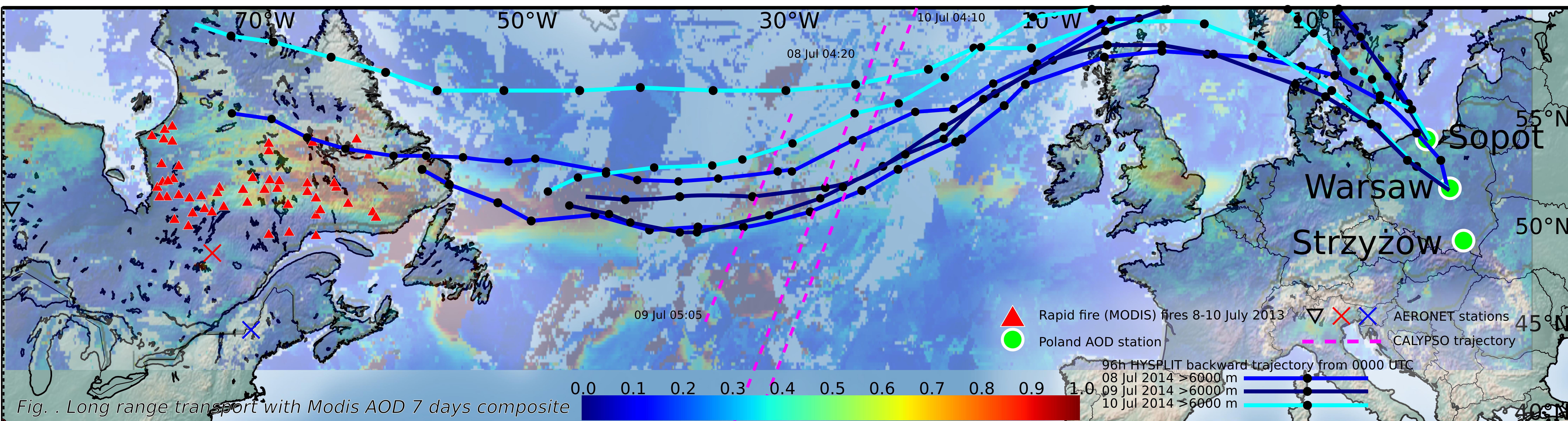
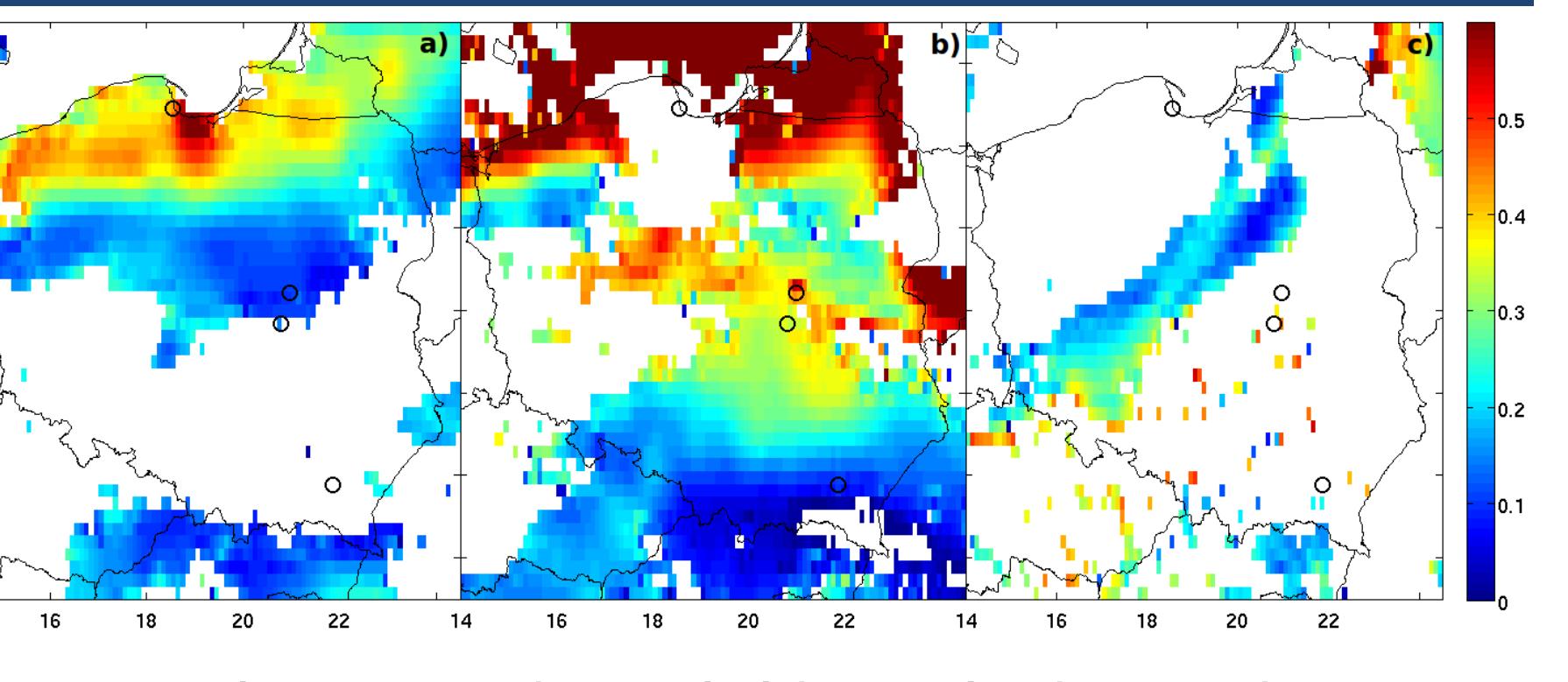
## Introduction

Summer 2013 was the driest one in the last 40 years in Quebec, Canada. Thunderstorms in May 2013 caused ignition which finally led to great forest fires in July 2013. Over 2 800 km<sup>2</sup> of forests were burned. Produced soot was spread over a great area and caused even a loss of electricity in Quebec. Our work is dedicated to long-range transport of those products to Central Europe.

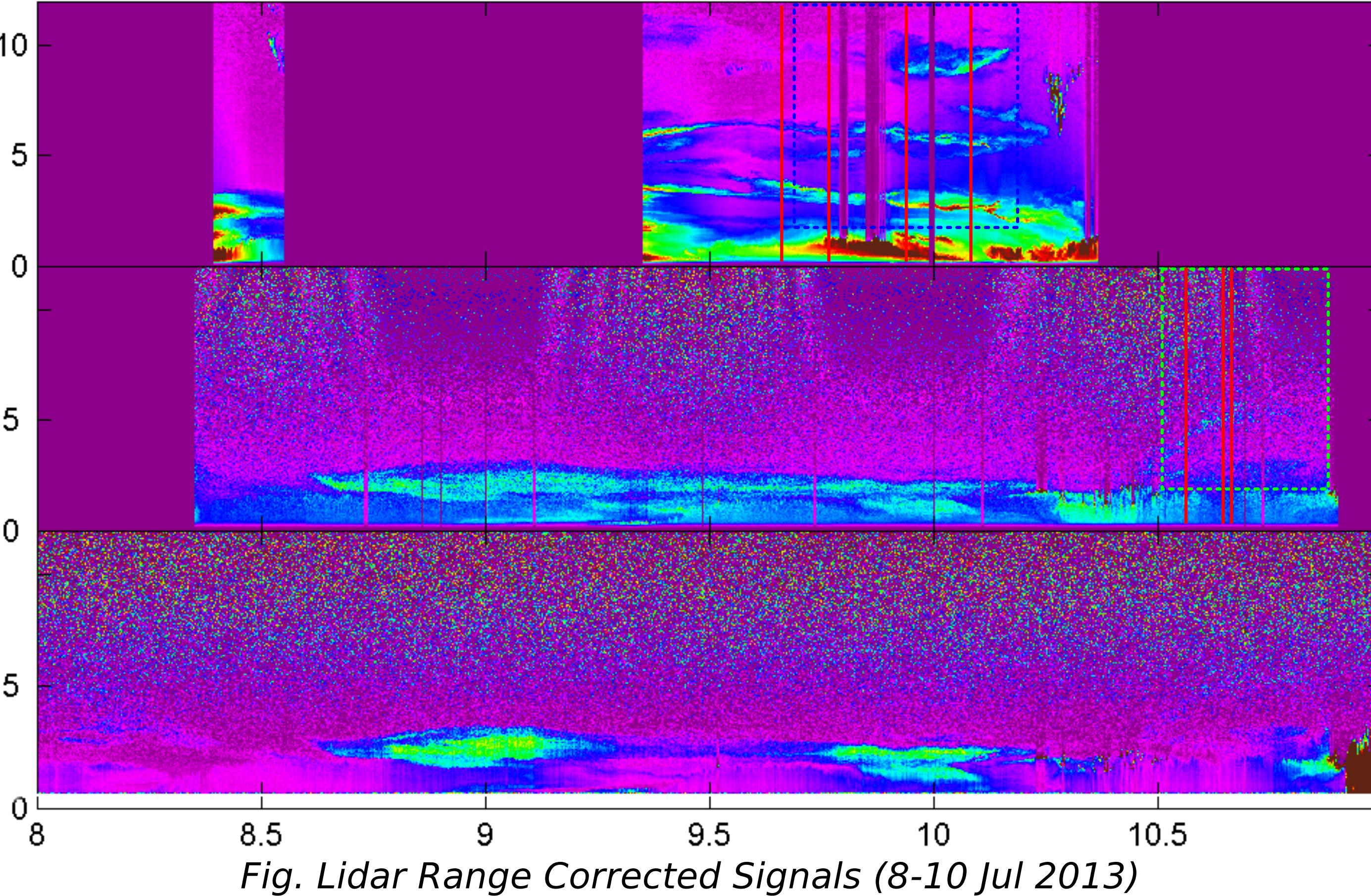
## Climatology of soot over Central Europe (NAAPS)



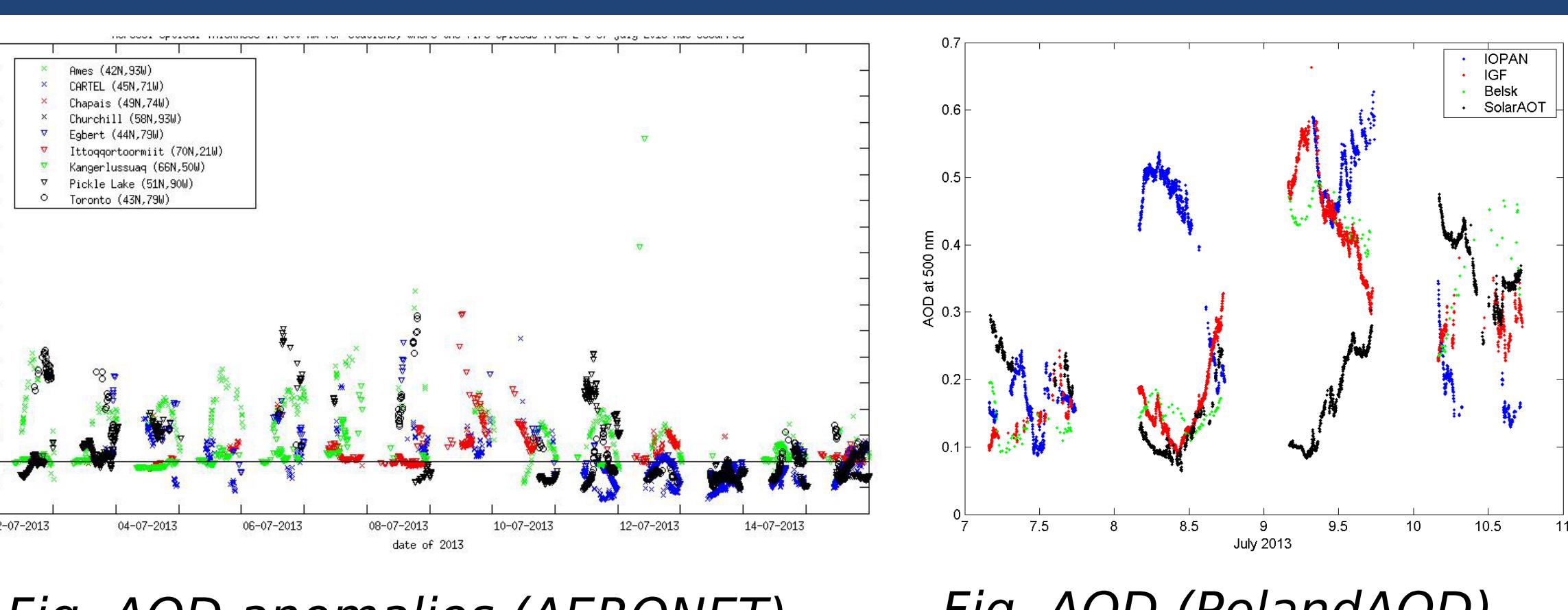
## MODIS AOD



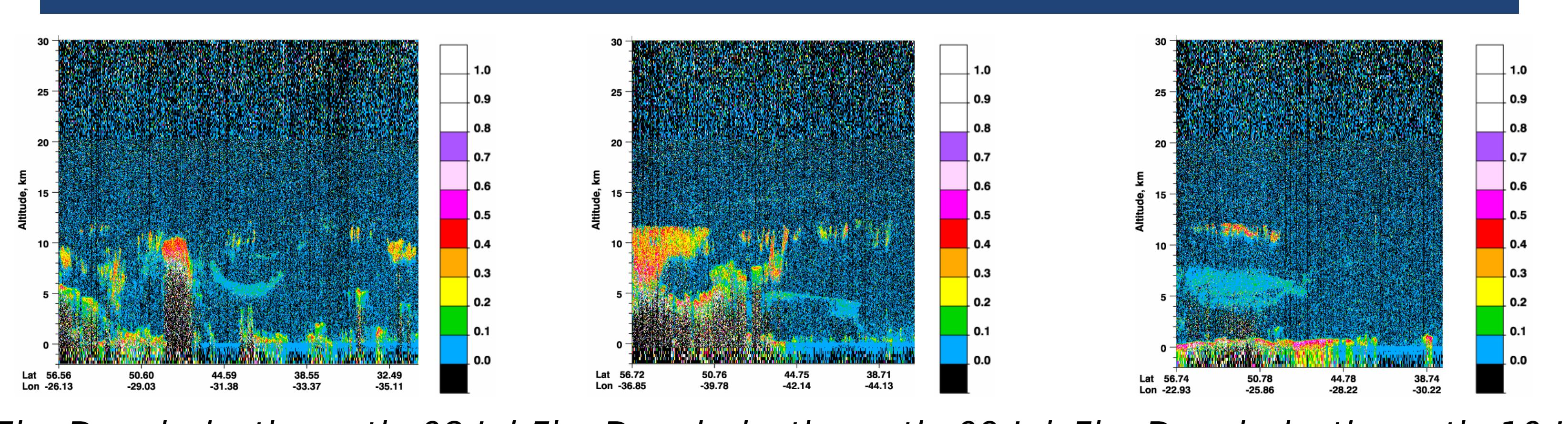
## Lidars



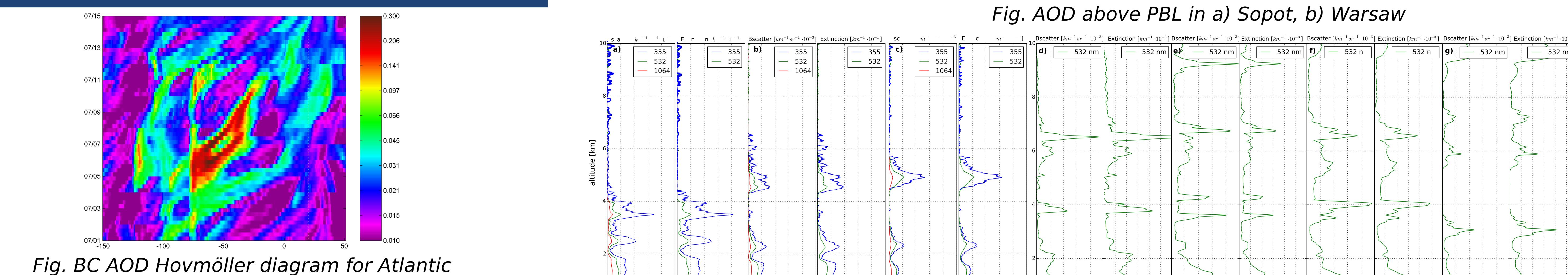
## Ground AOD 500 nm



## CALYPSO (depolarization ratio)



## MACC model



## Conclusions

- Central Europe is close to source regions of black carbon (BC) (mostly in spring and late summer), detected below 5 km a.g.l.
- Transport of BC from fires in Canada in July 2013 was greatest in the last decade and was observed above 5km a.g.l.
- Sparse network of AERONET stations in Canada registers only moderate AODs
- During travel over Atlantic black carbon was mixed with other aerosols (dust)
- AOD in Poland increased to 0.764 (0.35) at 355 nm, 0.560 (0.23) at 532 nm and 0.156 (0.06) at 1064 nm
- Detected aerosols were of moderate absorbing, SSA in Belsk, Poland (51N, 20E) during the event was ~ 0.89
- Aerosols were observed on different altitudes in Sopot (main layers: 4, 7.5, 10 km) and Warsaw (2.5, 3.5, 5 km)

## Contact

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