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# The dynamics of the polar electrical conductivity of air in the surface layer of the atmosphere during the shower rain of various genesis (on the example of Tomsk)

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- Much is known about electricity of fair-weather and other physical processes. However, it is necessary to take into account the circulation features of the atmosphere of various scales.
  - The aim of the study is to consider the influence of synoptic processes on the surface electrical state of the atmosphere using the example of Tomsk.

# Geophysical Observatory of IMCES SB RAS

Upper measuring platform



Lower measuring platform



# Case selection

## DATA (2018-2019):

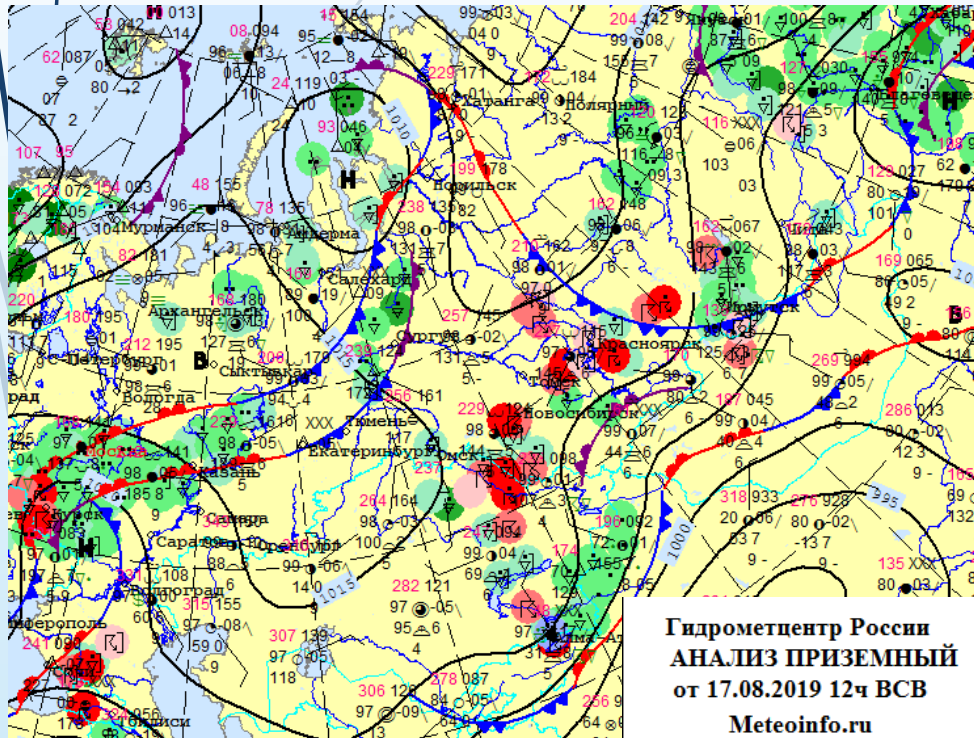
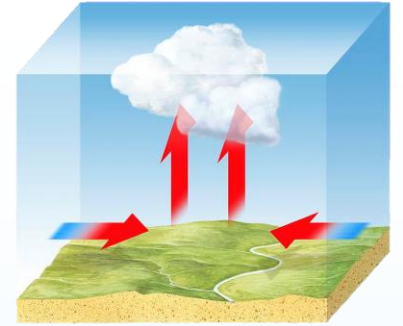
- ✓  $I > 5$  mm/h
- ✓  $\lambda_{\pm}$  are complete

## Synoptic map and satellite images:

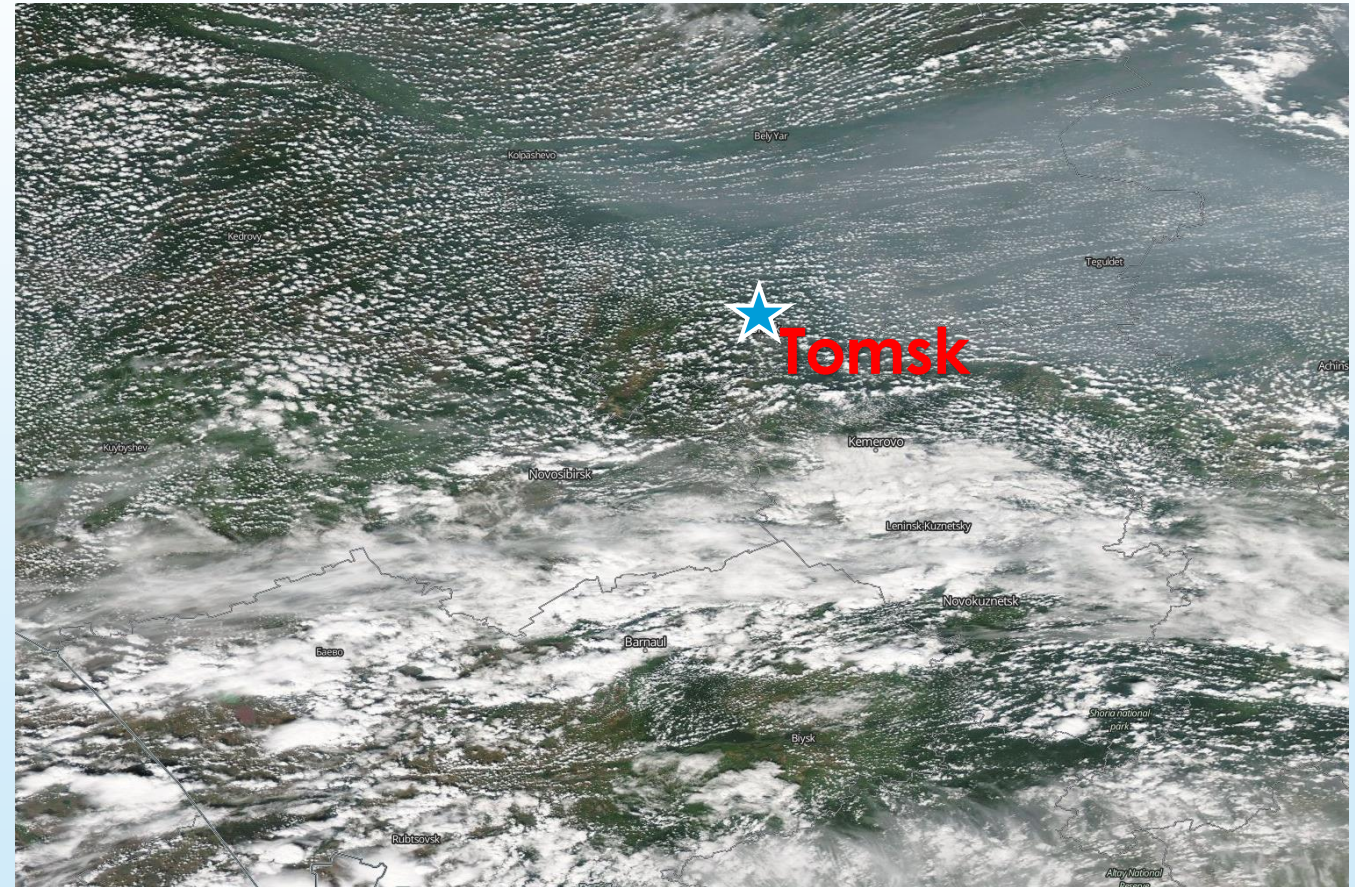
- Atmospheric front;
- Intra-mass clouds;
- Type of air mass

45 cases  
were  
selected

# Passing Intra-mass clouds

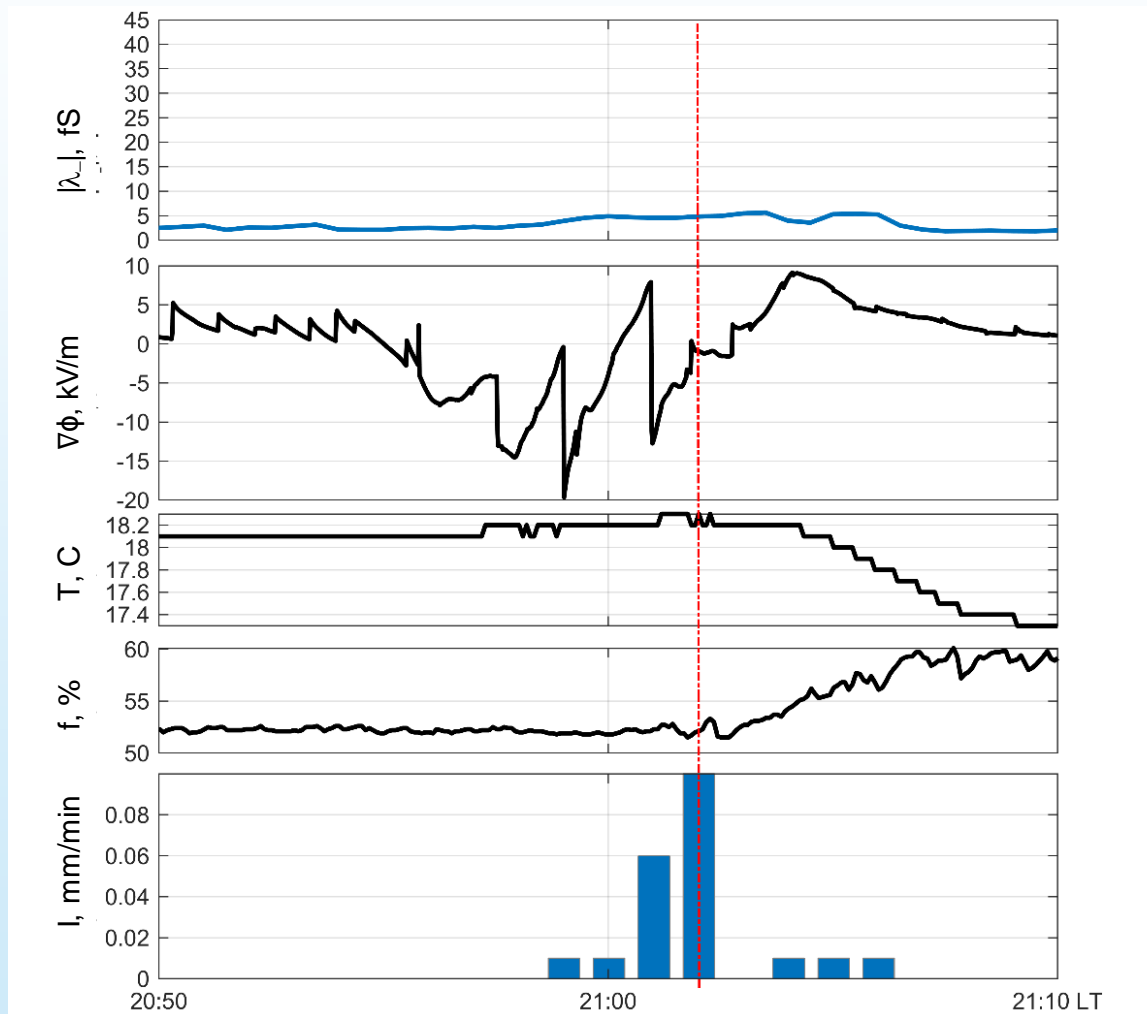


Surface synoptic map

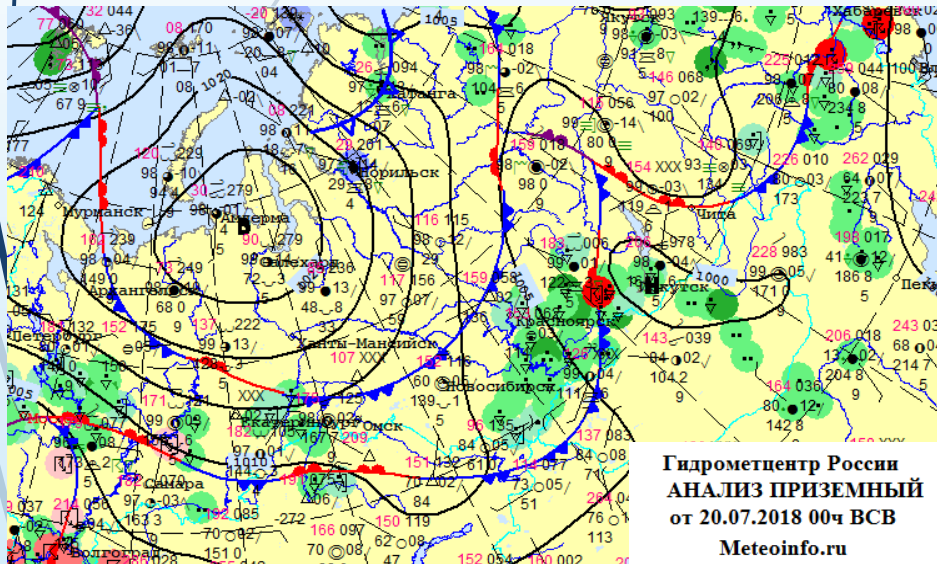
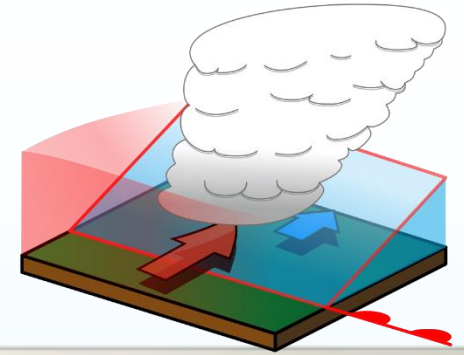


RGB image from satellite Terra, 07:25 UTC 17.08.2019

# Passing Intra-mass clouds and atmospheric-electrical quantities



# Passing the atmospheric front

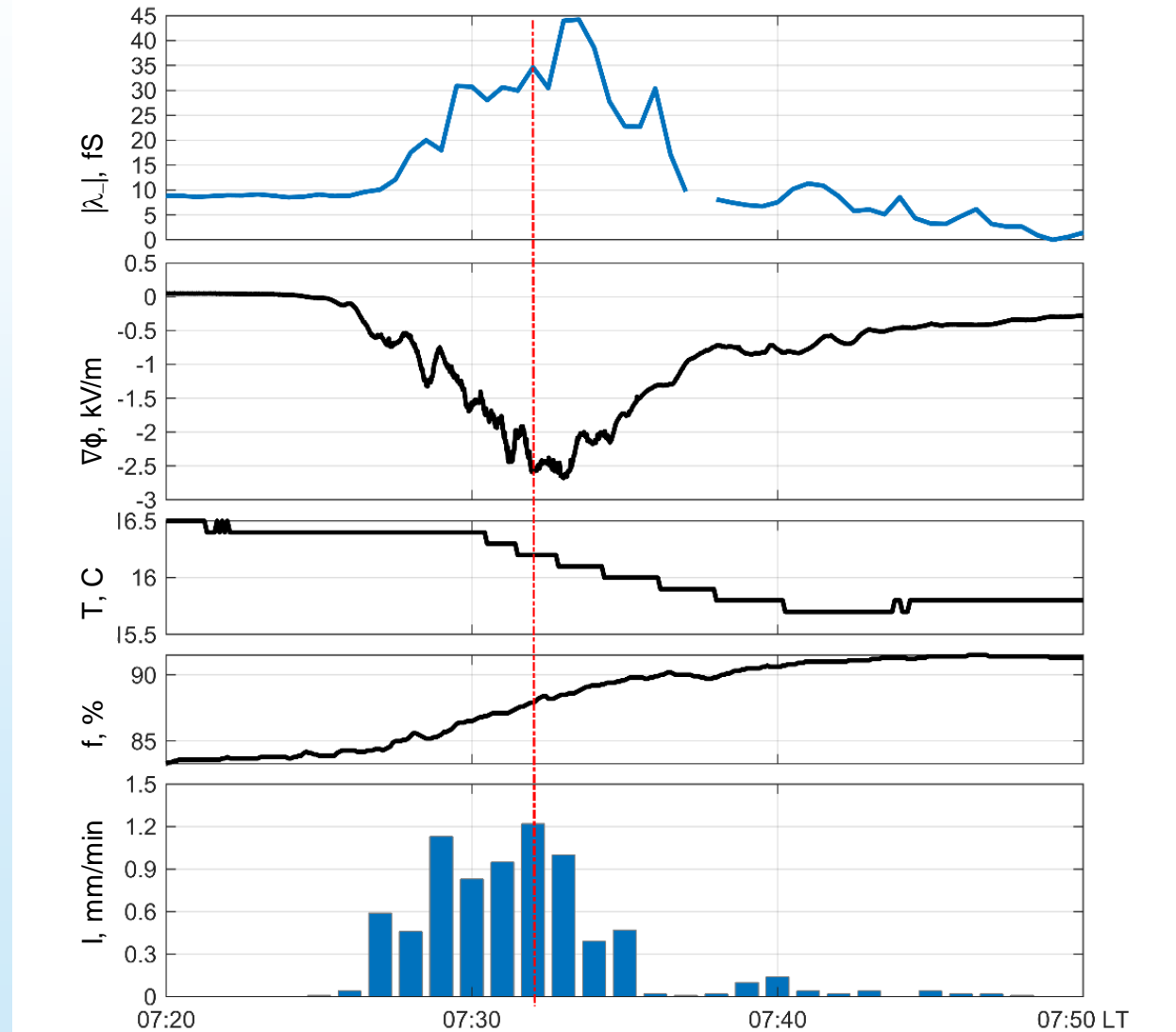


Surface synoptic map



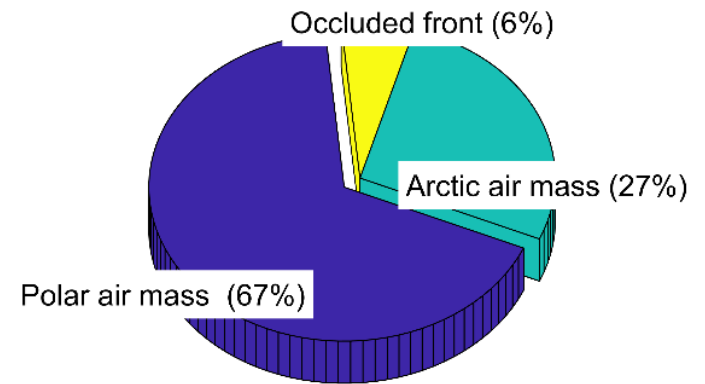
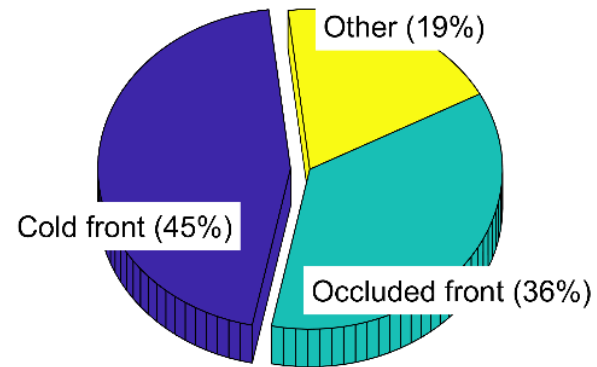
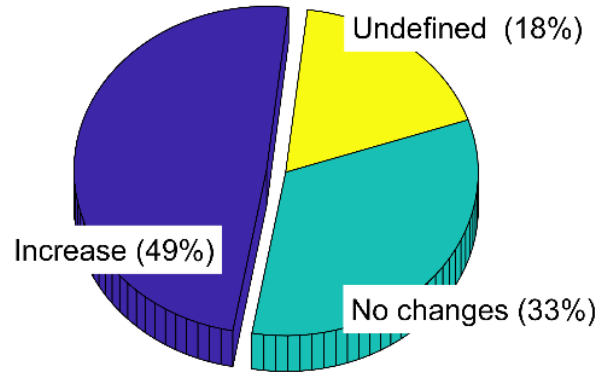
RGB image from satellite Terra, ~06 UTC 17-20.07.2018

# Passing the atmospheric front and atmospheric-electrical quantities





# Relative air conductivity and synoptic conditions





# Conclusion

- ▶ An increase in air conductivity is observed during frontal rainfall;
- ▶ Intra-mass precipitation, as a rule, does not significantly affect the polar conductivity of air.

The influence of frontal precipitation on air polar conductivity requires additional research