



Analysis of annual temperature distribution inside the experimental embankment

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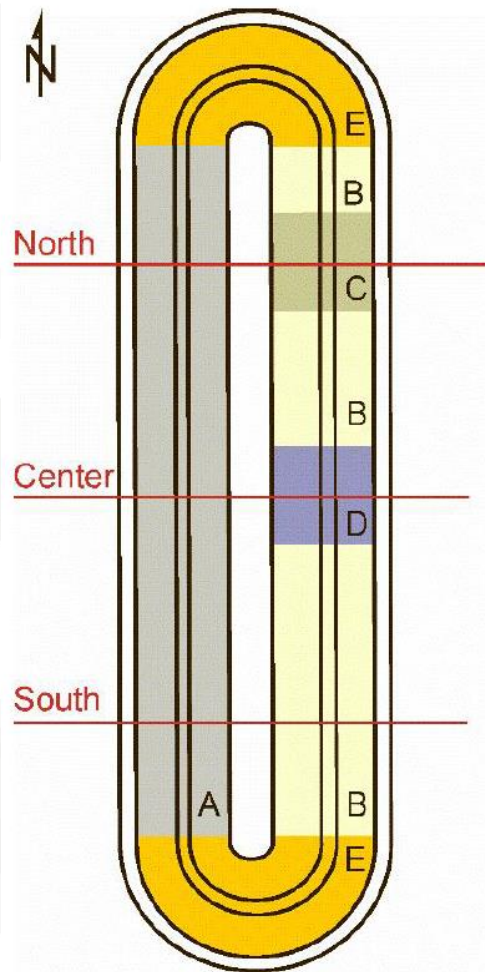
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IM. STANISŁAWA ŚLĄSZYCZA
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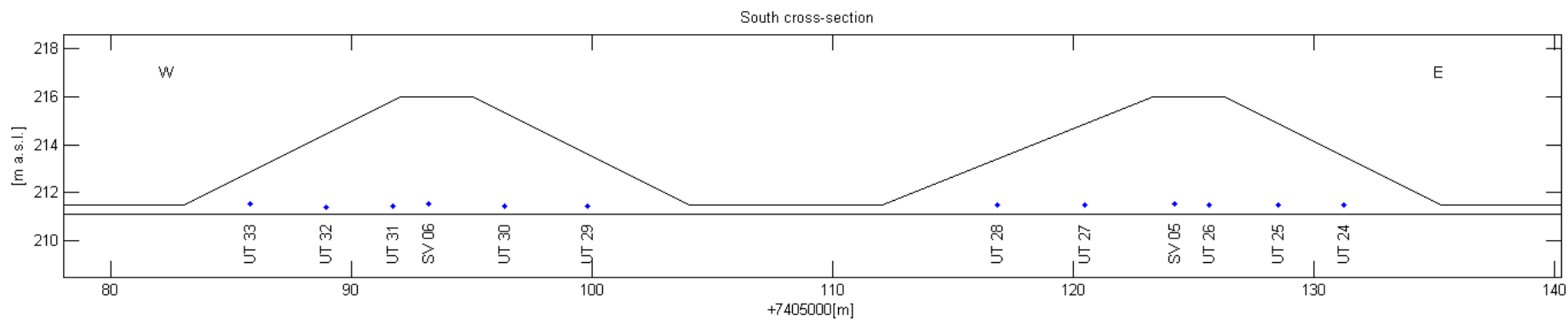
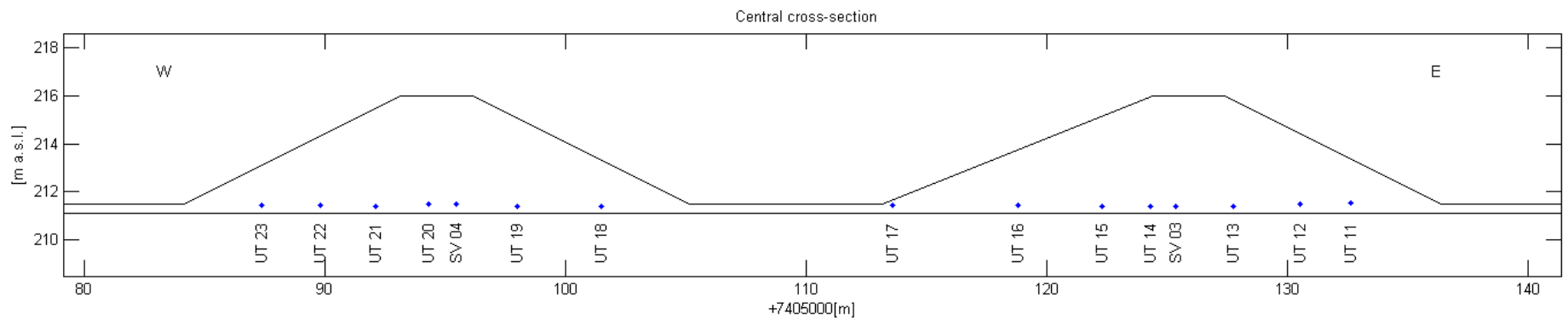
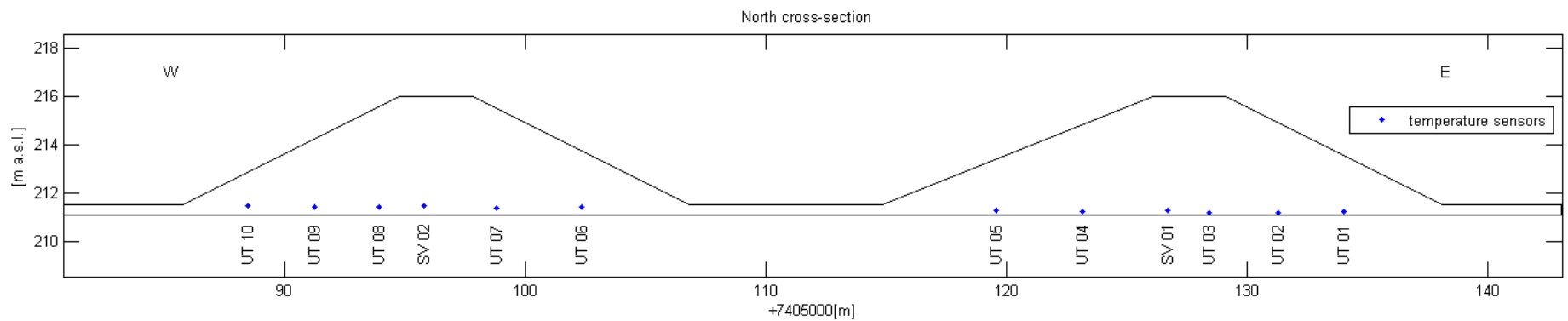
PLAN OF PRESENTATION

- Construction of embankment
- Location of reference temperature point sensors in cross-sections
- Plots of measured temperatures in last year (10th August 2015 – 22nd September 2016)
- Conclusions and future work

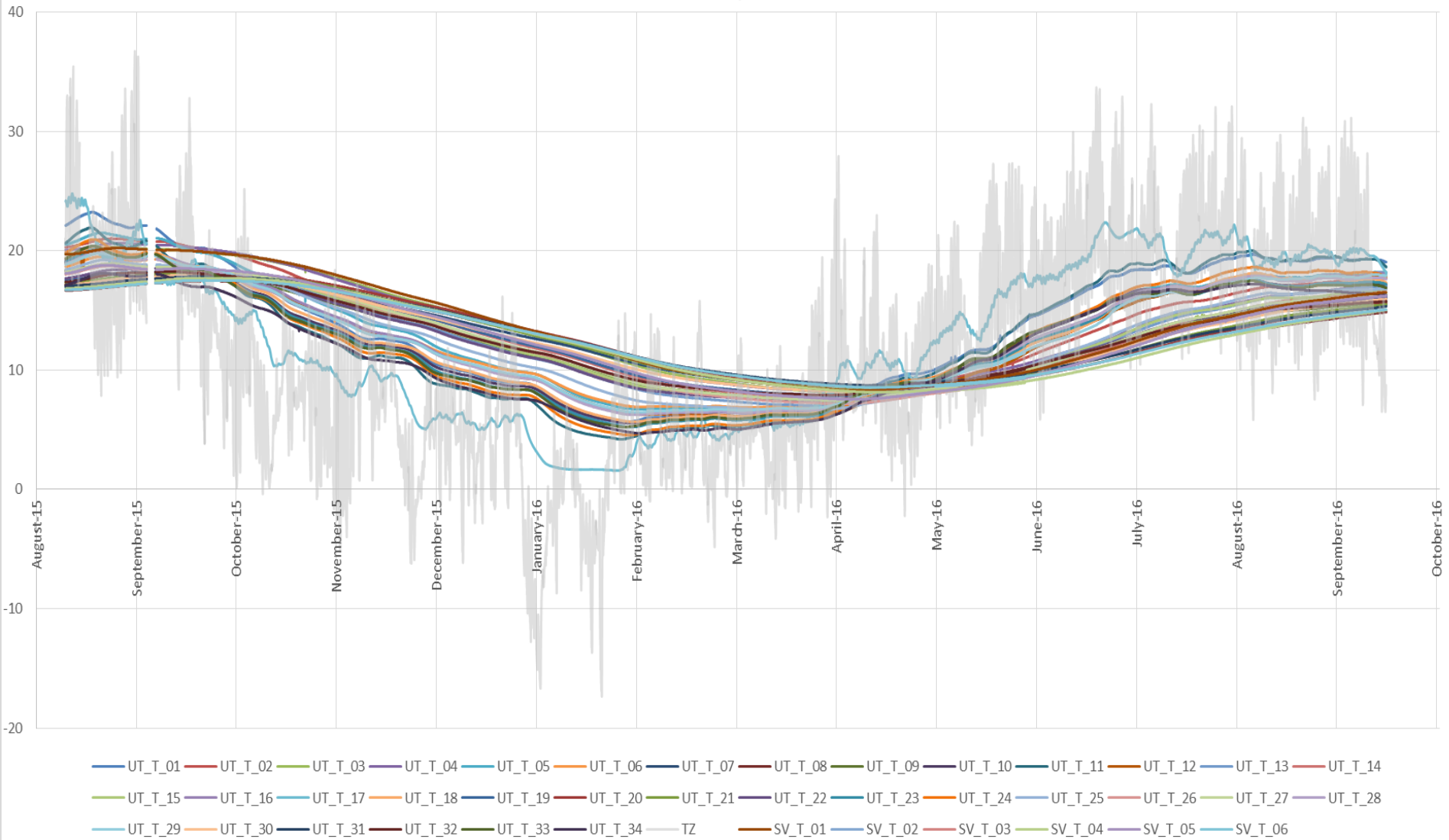
Construction of embankment

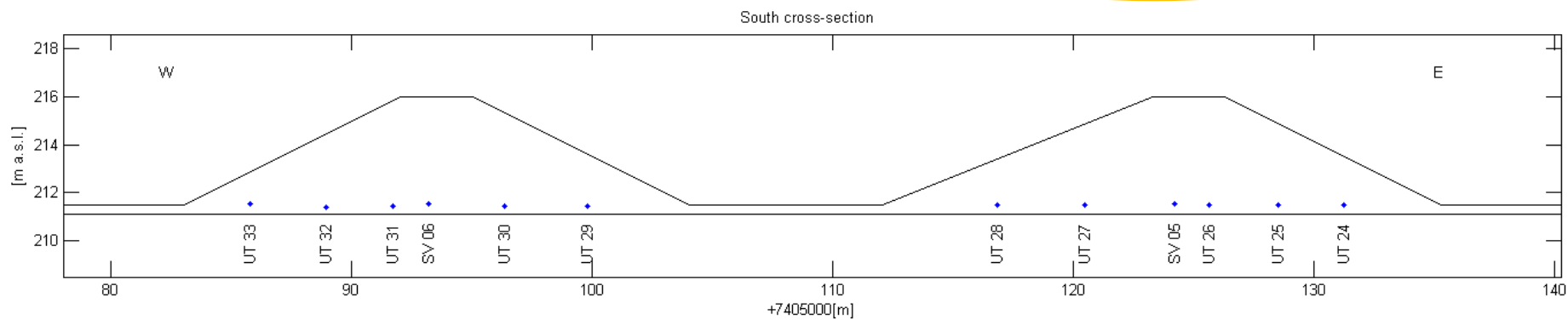
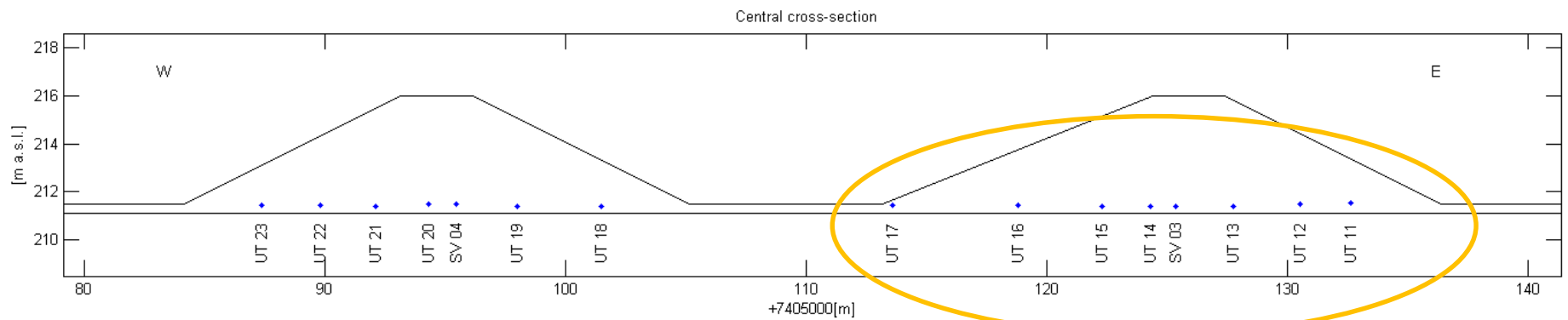
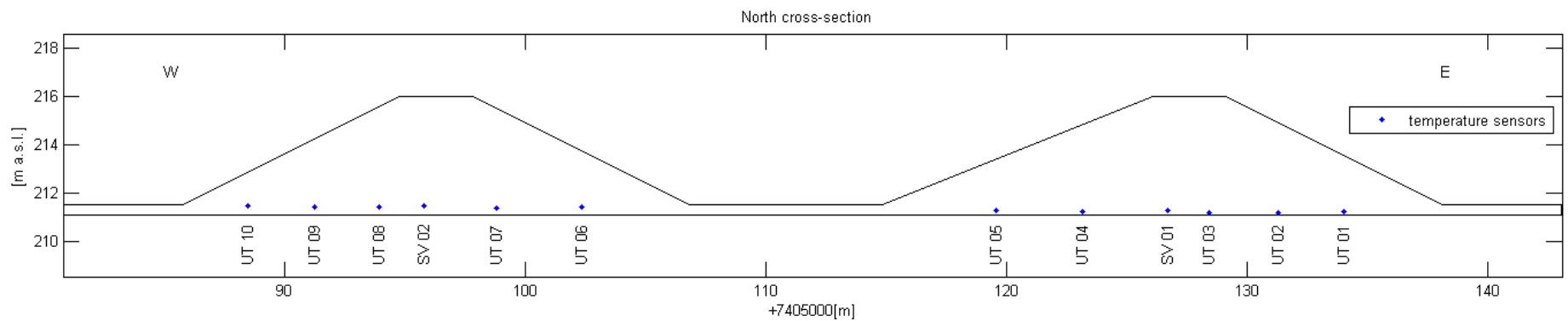


- ~200m long and ~50m width
- 5 different types of soil materials
- western levee is symmetric, eastern levee is asymmetric
- 3 cross-sections with 39 reference point sensors
- weather station

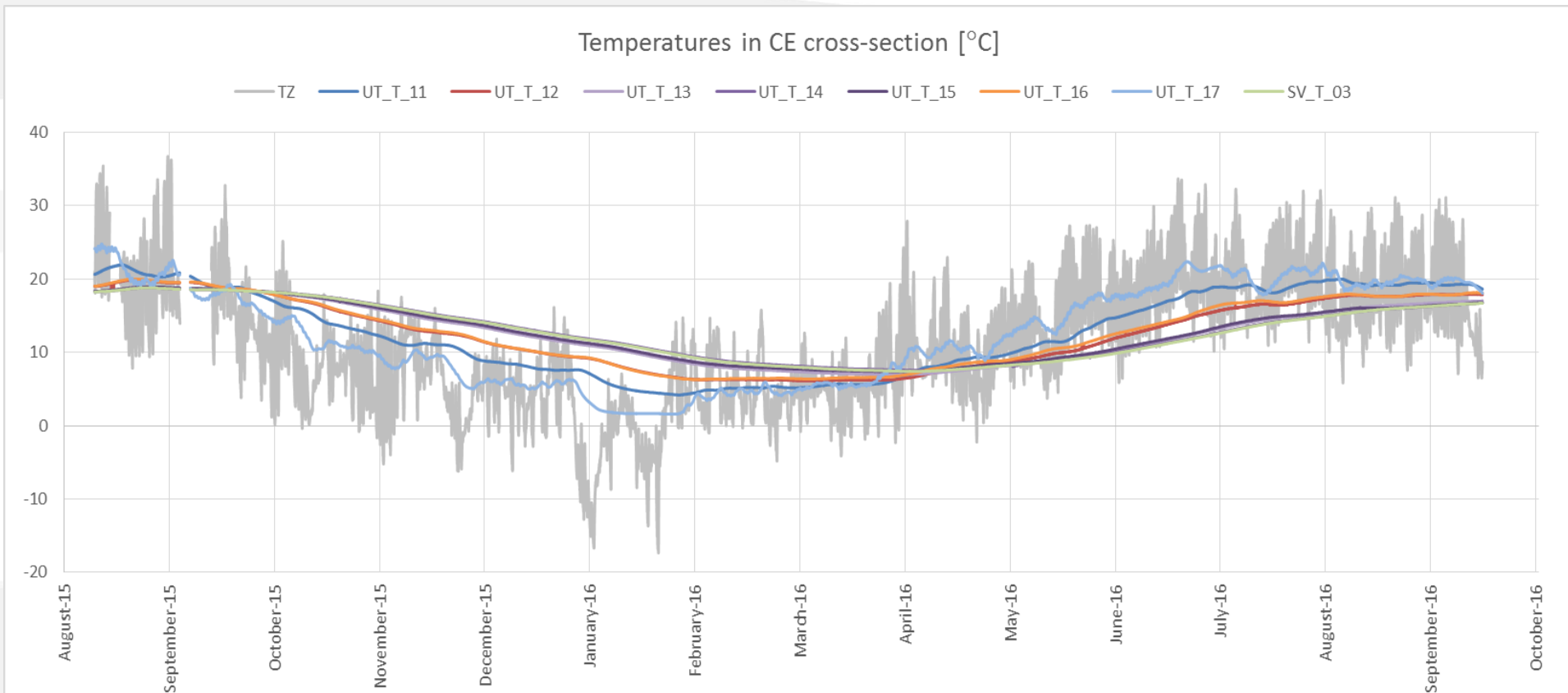


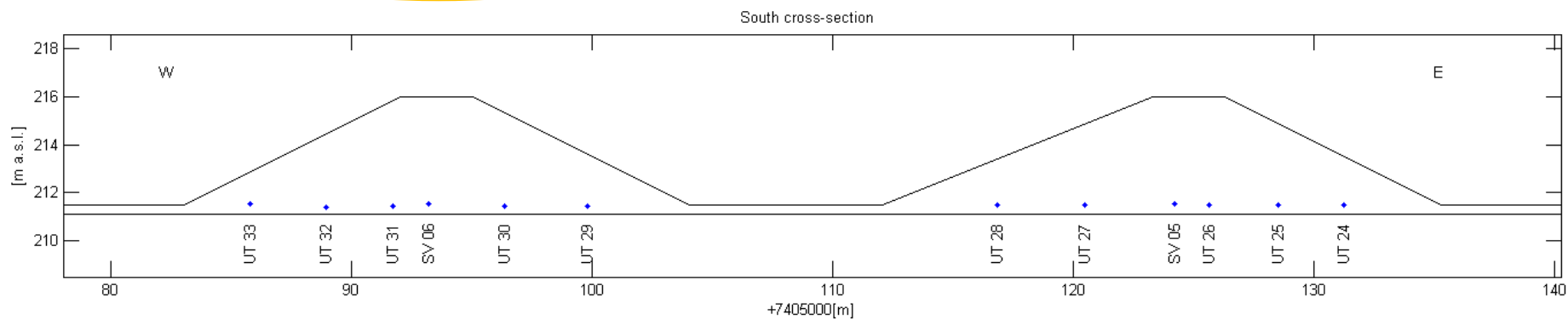
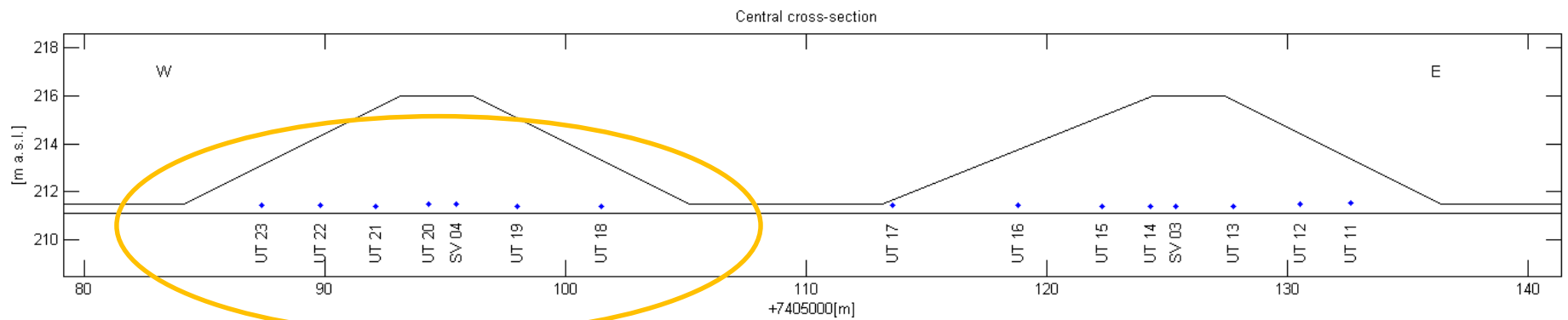
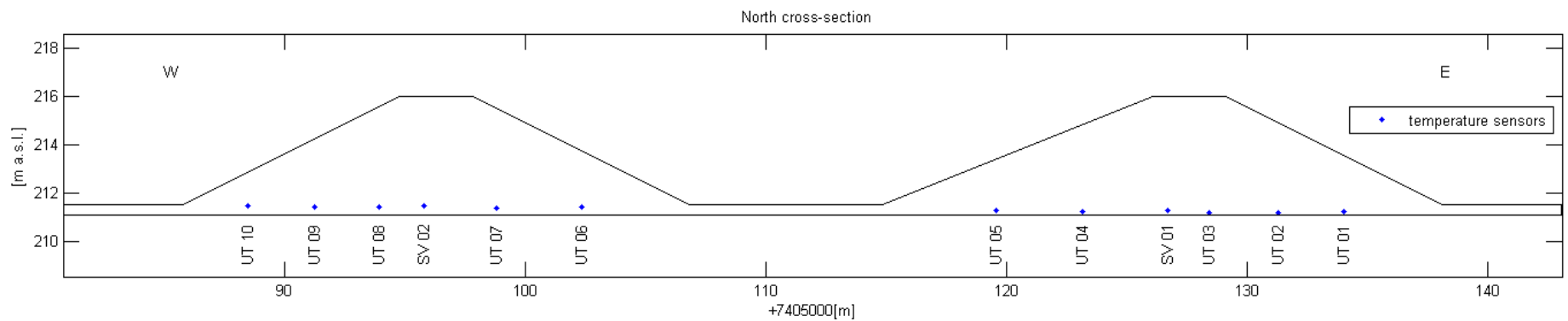
All reference temperature sensors



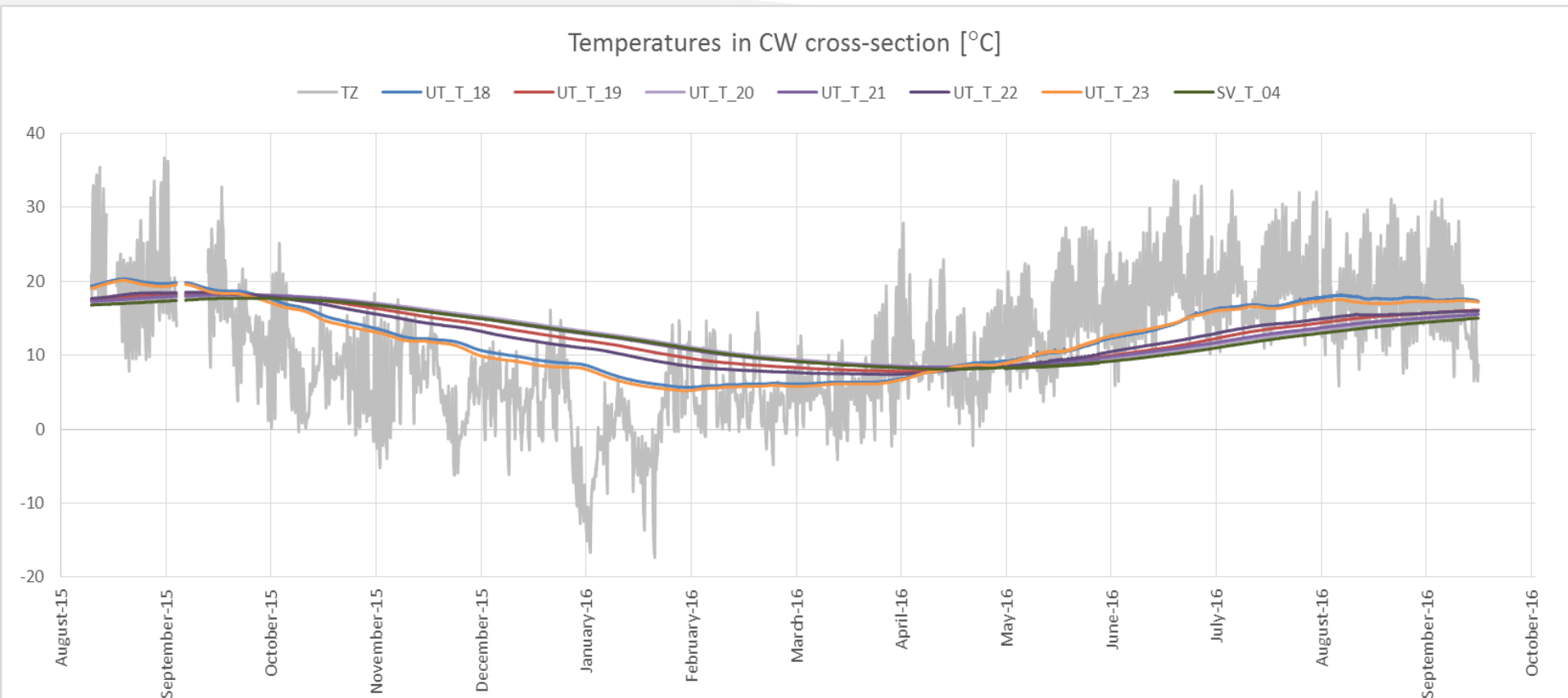


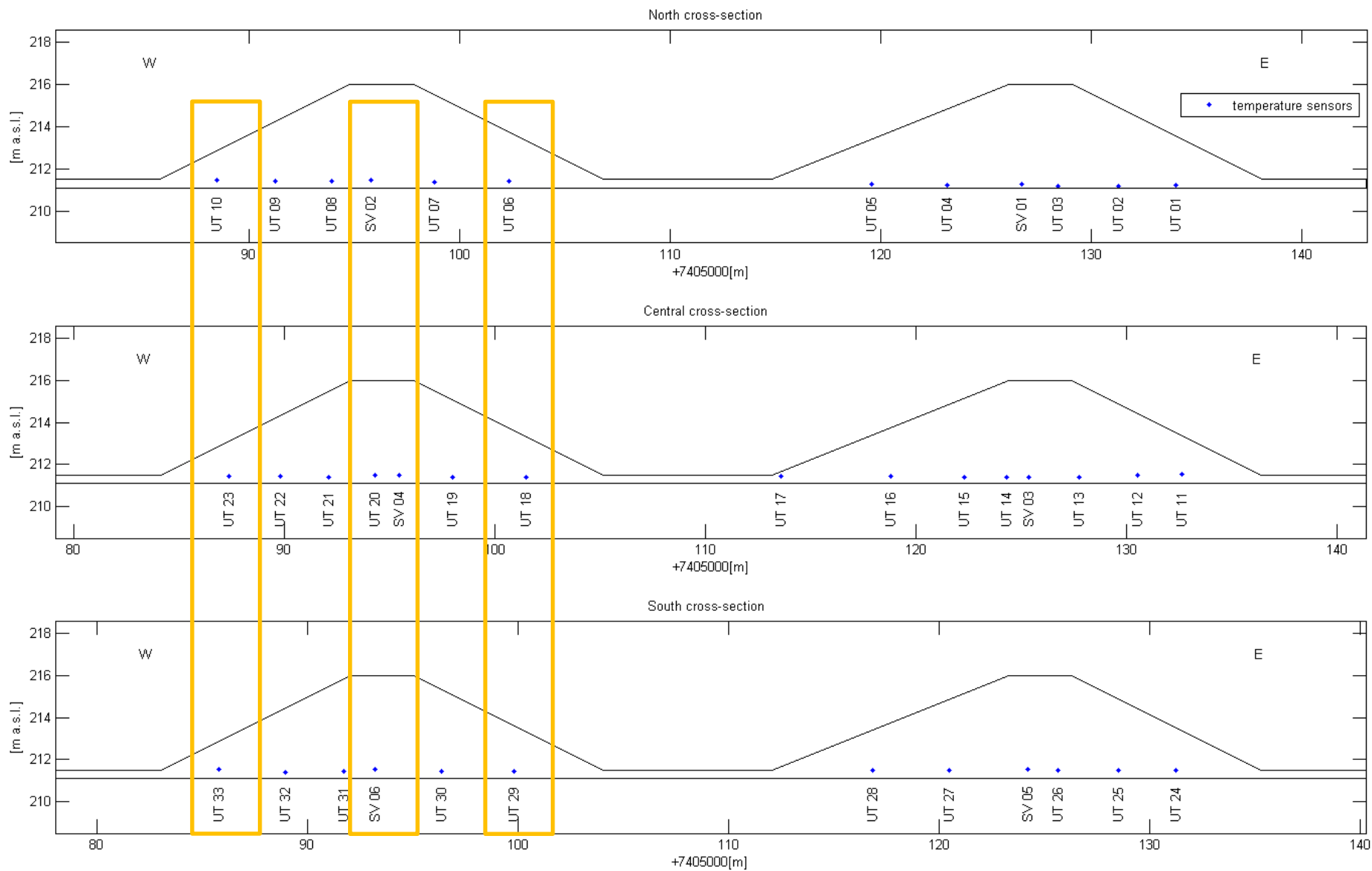
CE cross-section

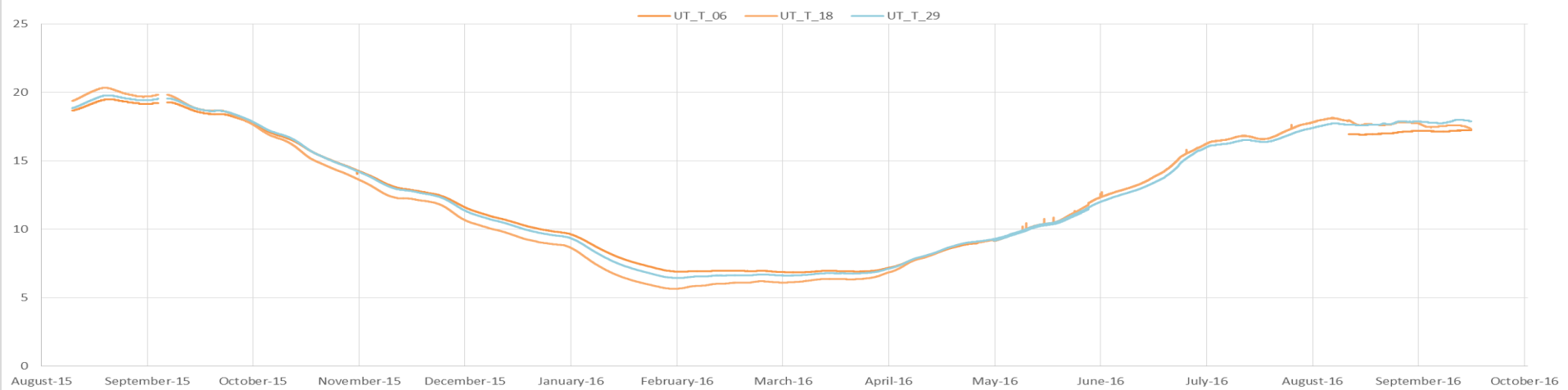
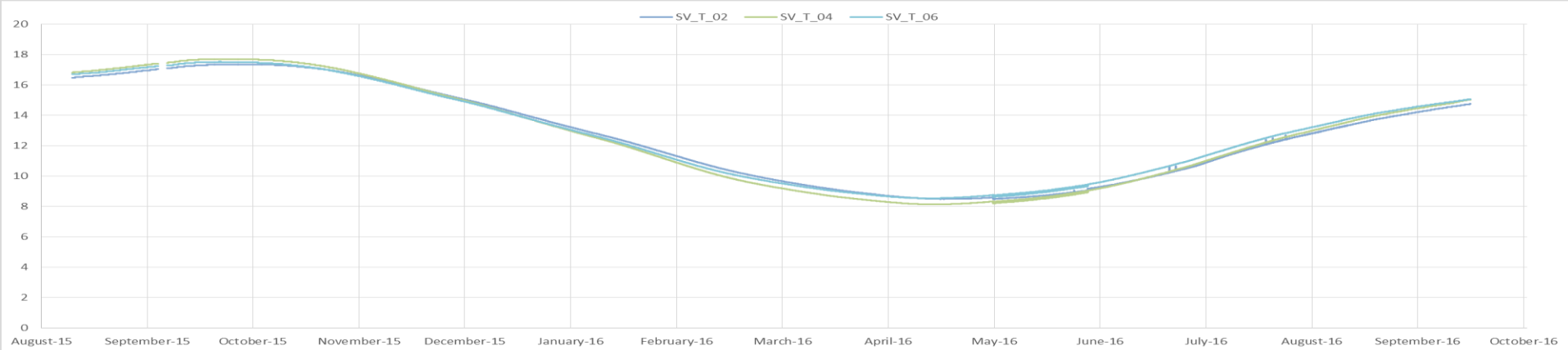
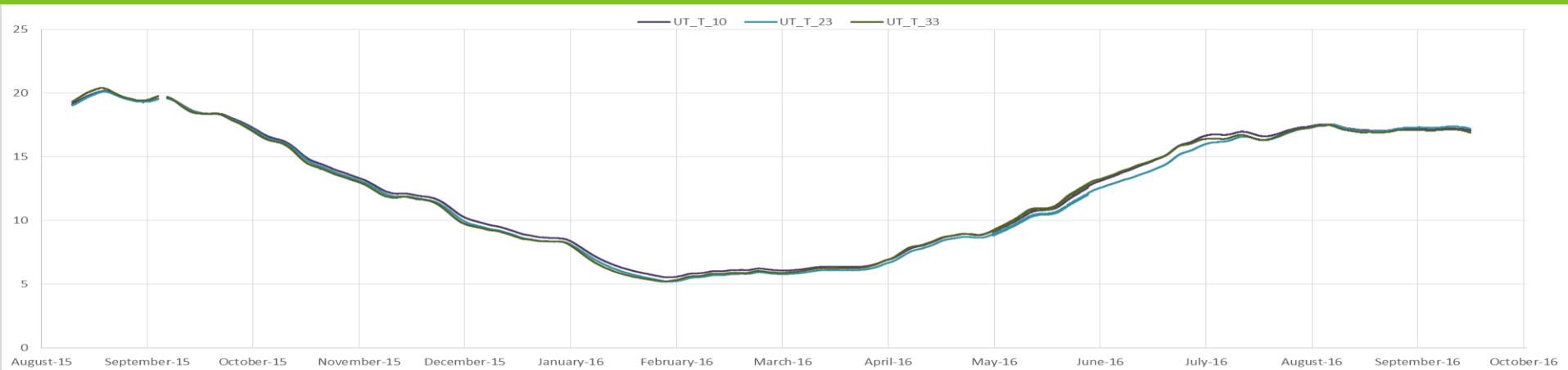


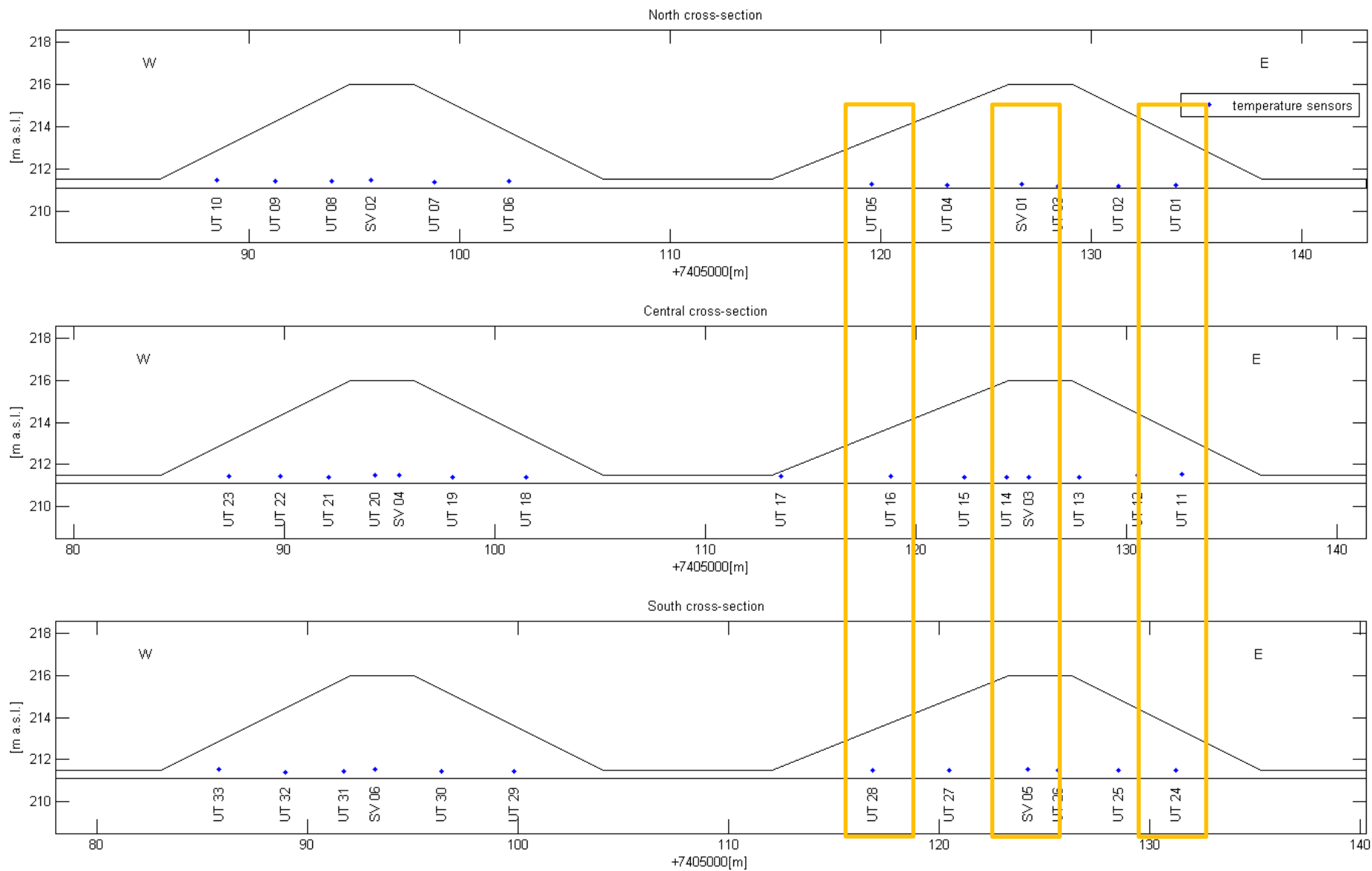


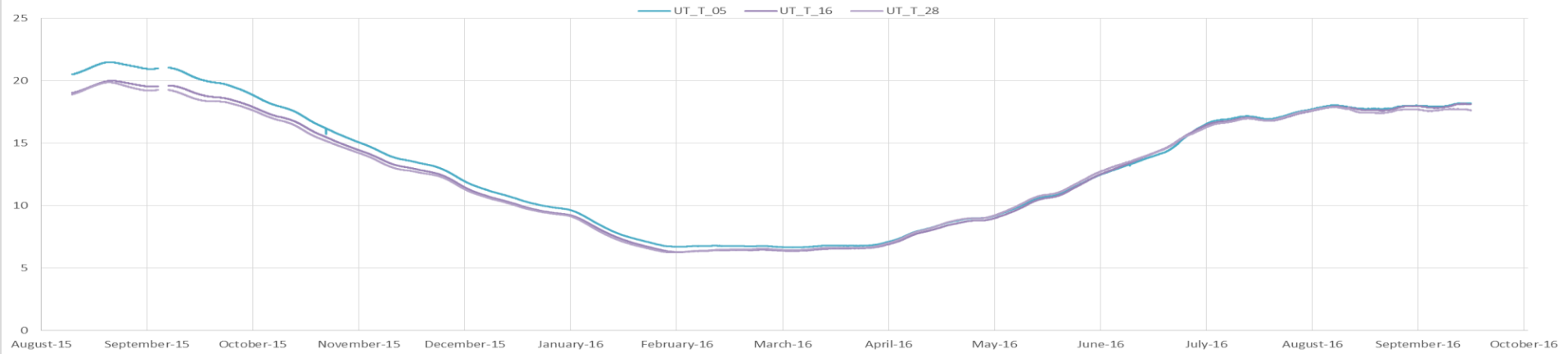
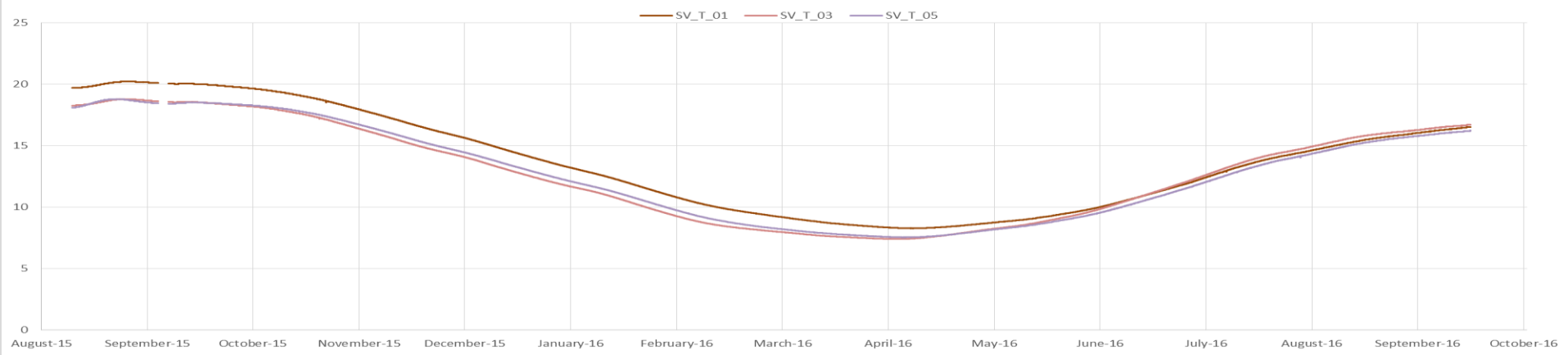
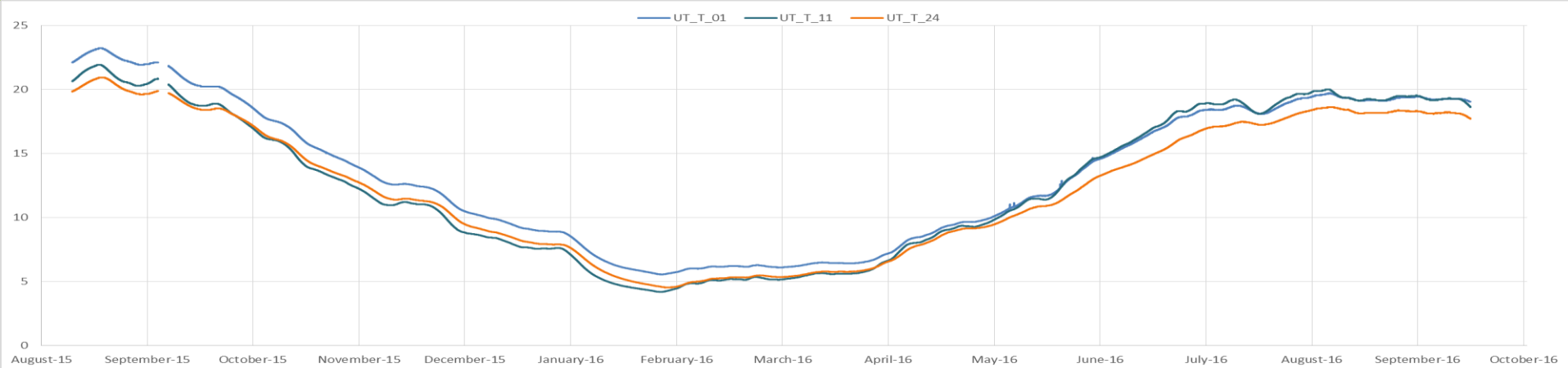
CW cross-section



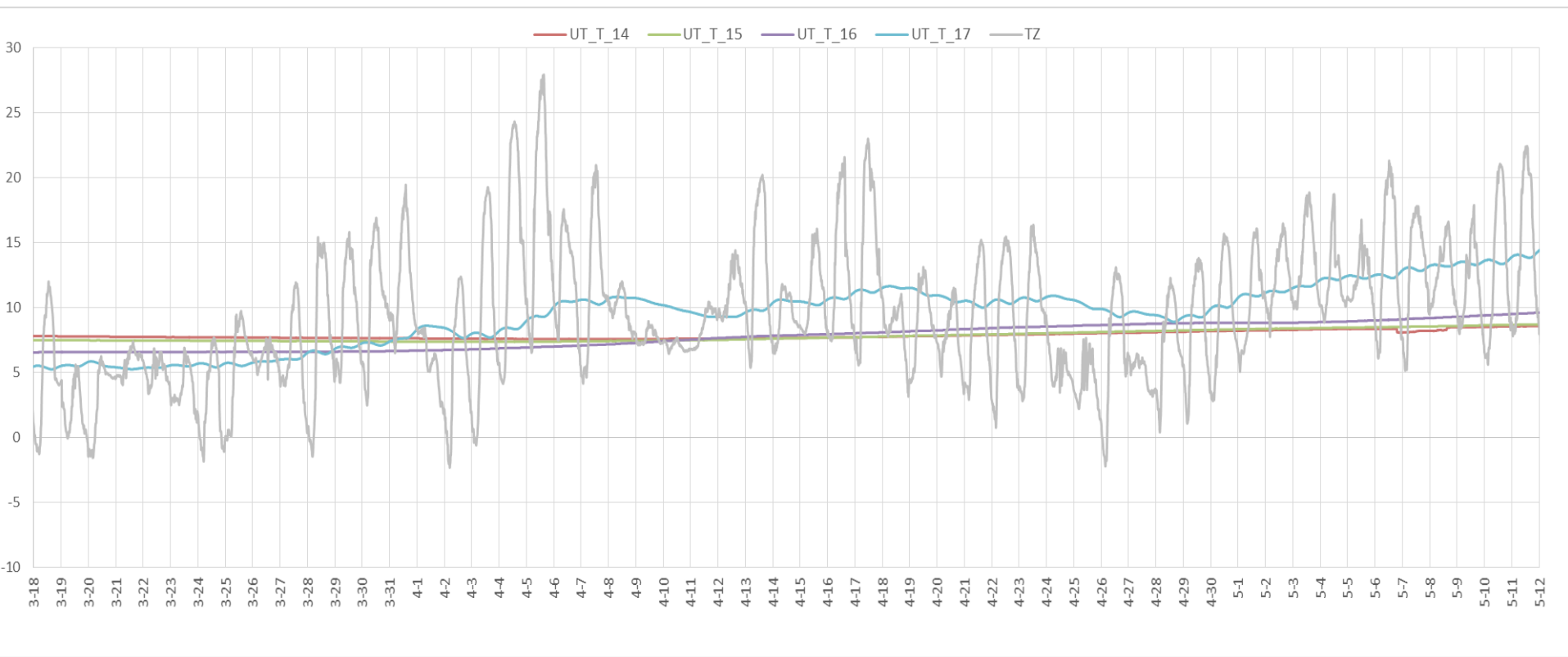








Sensitivity and shift in phase



Conclusions

- The temperatures curves are shifted in phase due to the ambient temperature.
- Minimum and maximum temperatures for each sensor are achieved in different moments of time and they differ from each other even by several months.
- In September and April temperatures observed by sensors were similar.
- For each period of time, a simplified model of the initial parameters based on historical and current temperature can be prepared for a numerical modelling purposes.

Future work

- Using the presented analysis, it will be possible to prepare the numerical model for the initial temperature of the experiment performed in a given period of the year.
- Preparation of flooding experiments on embankment during the hot spring when a high temperature differences occurring can lead to increased heat flow inside the embankment

Other posters of our team

- ***Optimal numerical models selection for flood embankment pore pressure data***
M. Chuchro, M. Dwornik, K. Szostek, A. Leśniak
- ***Anomalies detection in real data from experimental flood embankment***
M. Chuchro, K. Szostek, A. Leśniak
- ***Influence of initial water saturation in earthen levee on results of numerical modelling of infiltration process***
M. Dwornik, A. Franczyk, A. Leśniak, K. Krawiec



<http://www.ismop.edu.pl>



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