

Heat transfer in shallow subsurface under different climate conditions in Europe (Czechia, Slovenia, Portugal)

V.Čermák, P.Dědeček, M.Krešl, J. Šafanda and T.Uxa

Geofyzikální ústav AV ČR, v.v.i.
Boční II/1401, 14131 Praha
jsa@ig.cas.cz

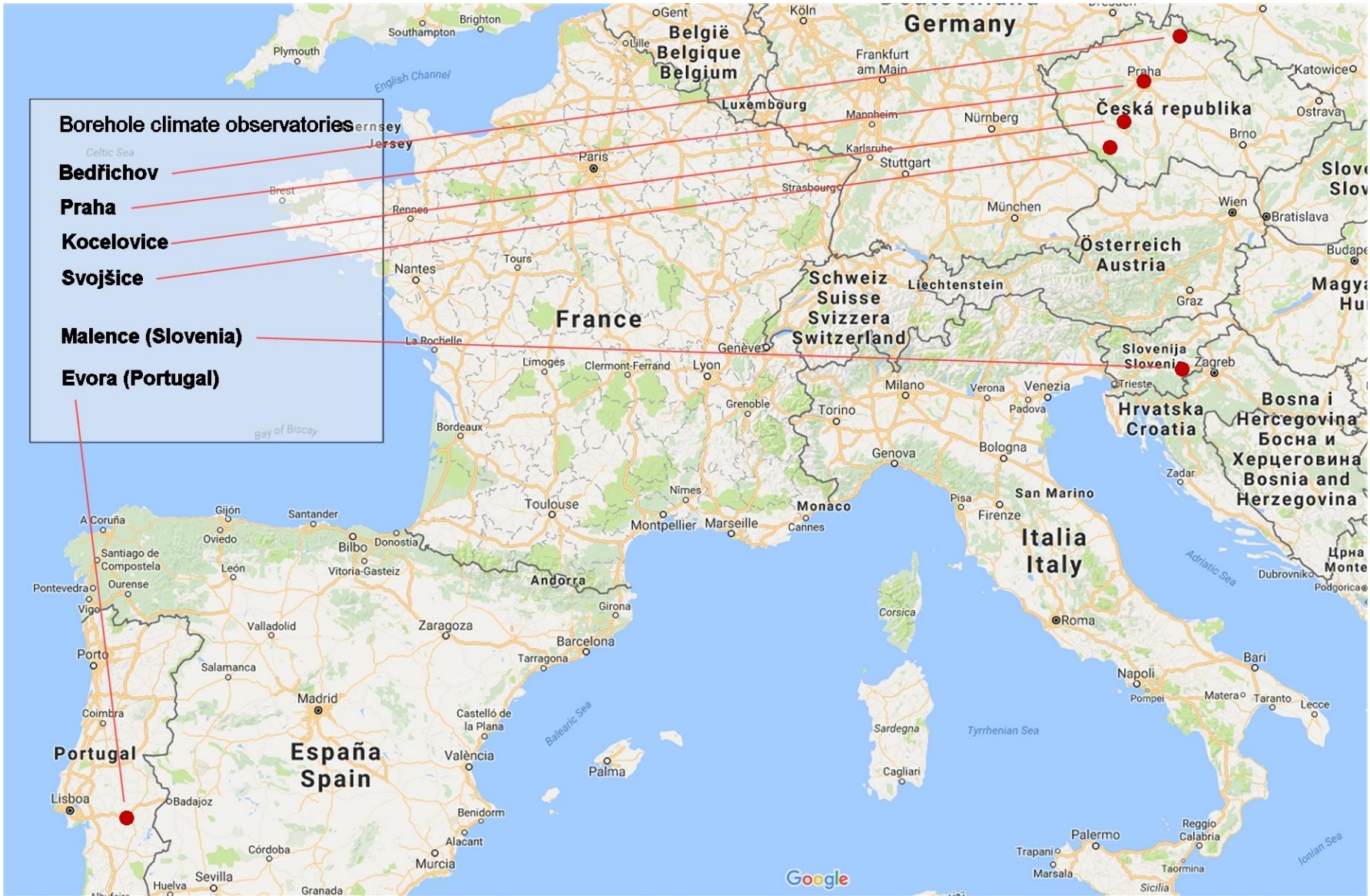
Partners

- Institute of Geophysics, Czech Academy of Sciences, Prague, Czech Republic (GeoCLIMANET team : V.Čermák, P.Dědeček, R.Kincler, M.Krešl, J. Šafanda and T.Uxa)
- Geophysical Centre of University Evora, Evora, Portugal (Prof.Antonio Correia)
- Geological Survey of Slovenia, Ljubljana, Slovenia (Dr.Dušan Rajver)

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Monitoring sites

- **Czechia**
 - Institute of Geophysics, Spořilov, Prague
 - Kocelovice meteorological station
 - Bedřichov in Jizerské hory Mountains
 - Svojšice
- **Portugal**
 - Caravelinha near Evora
- **Slovenia**
 - Malence near Kostanjevica



Borehole climate observatories

Bedřichov

Praha

Kocelovice

Svojšice

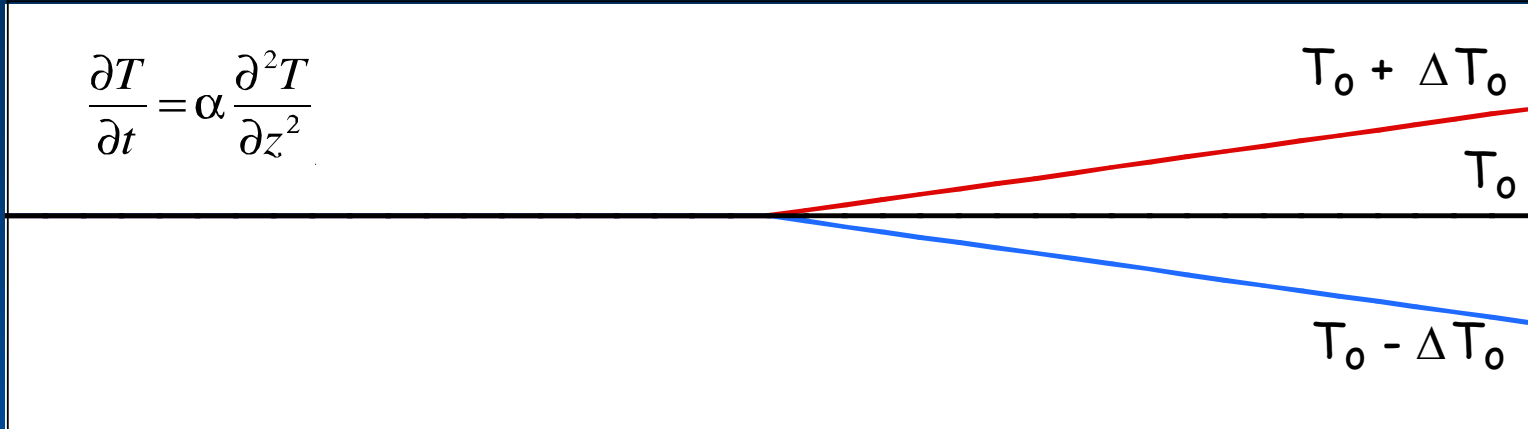
Malence (Slovenia)

Evora (Portugal)

The Geothermal Method

Surface Temperature

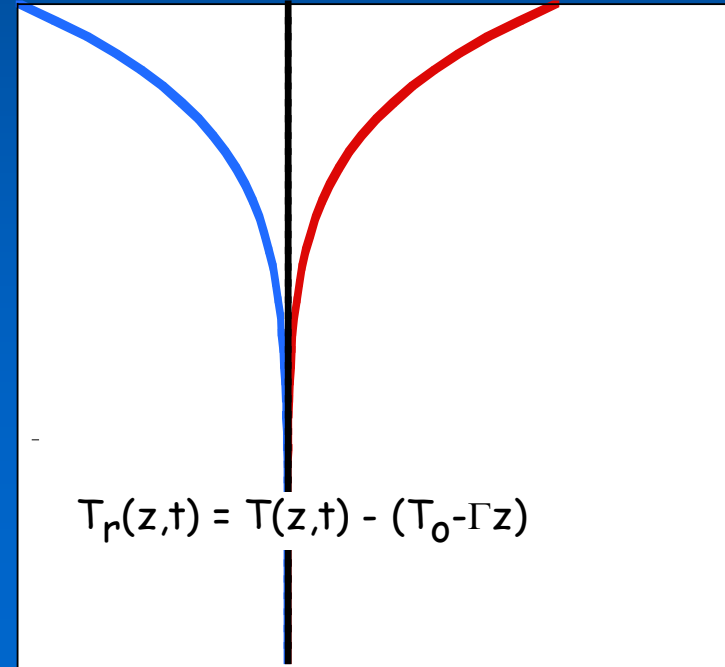
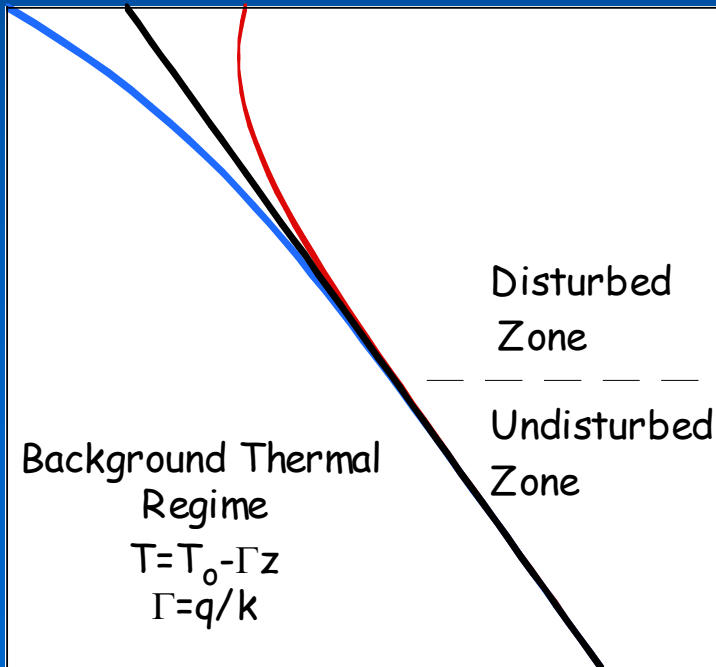
Time

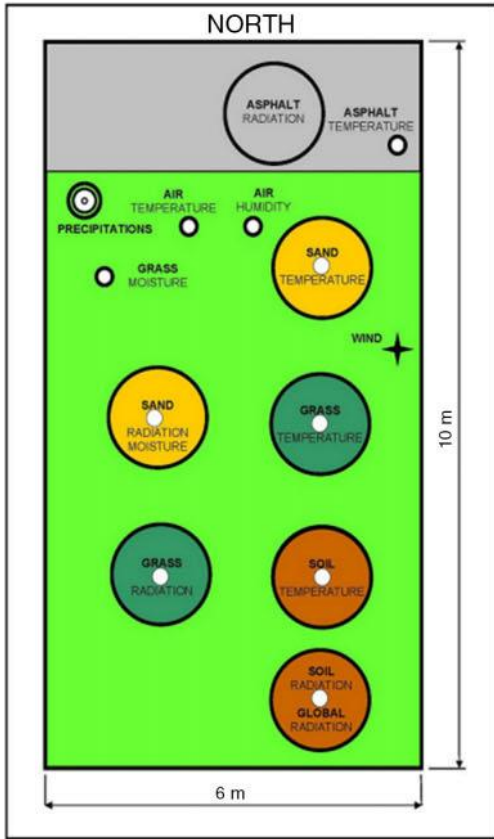


Temperature

Reduced Temperature

Depth









Position of dataloggers



SAT



590 m.a.s.l. north slope



598 m.a.s.l. hilltop



590 m.a.s.l. south slope





**Borehole Climate
Change Observatory
in Evora, Portugal**

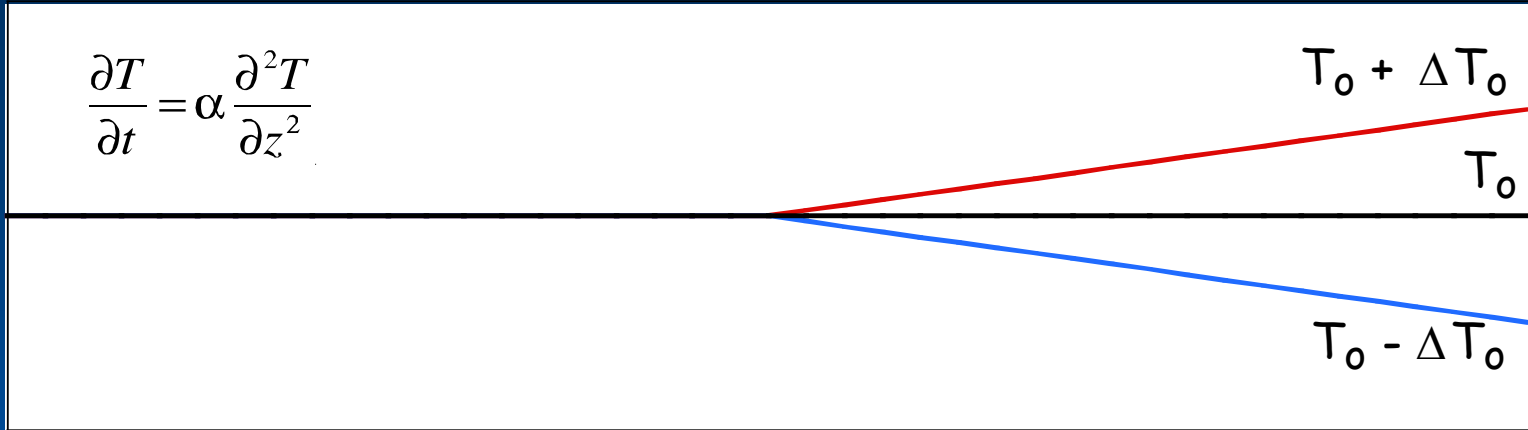


Borehole climate
change observatory
in Malence, Slovenia

The Geothermal Method

Surface Temperature

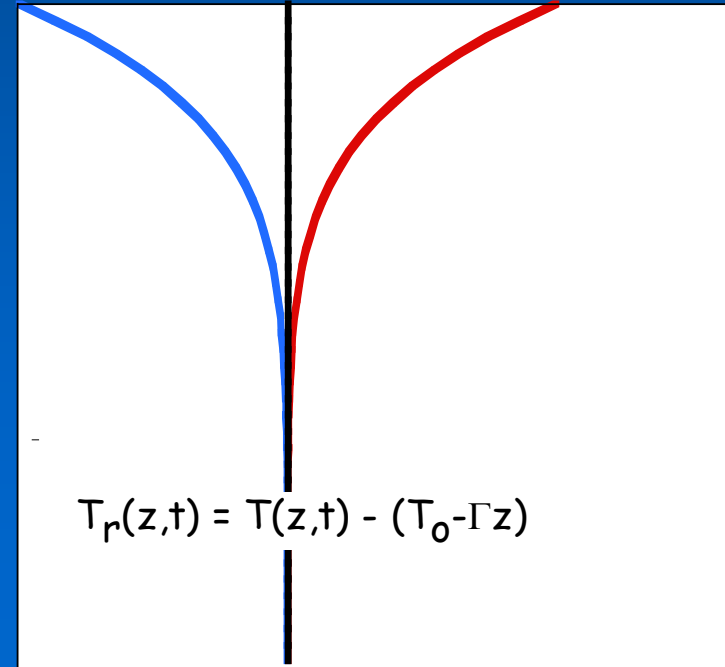
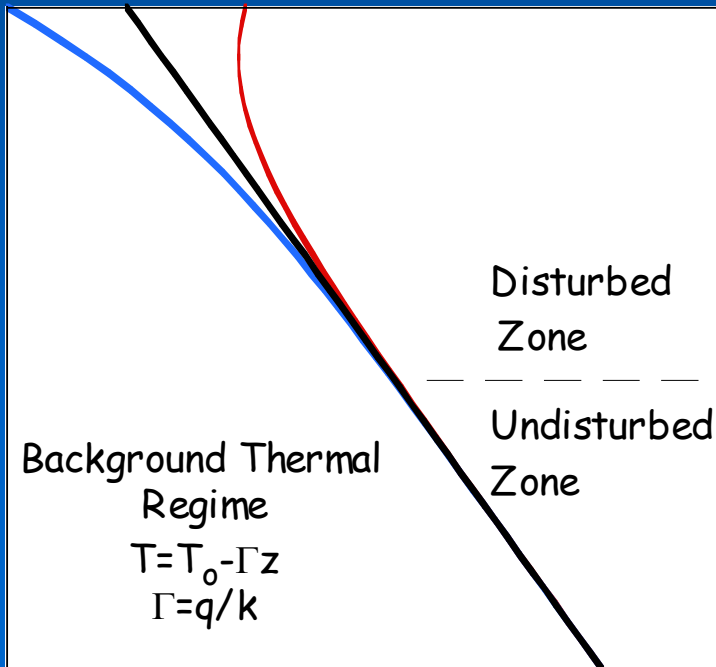
Time

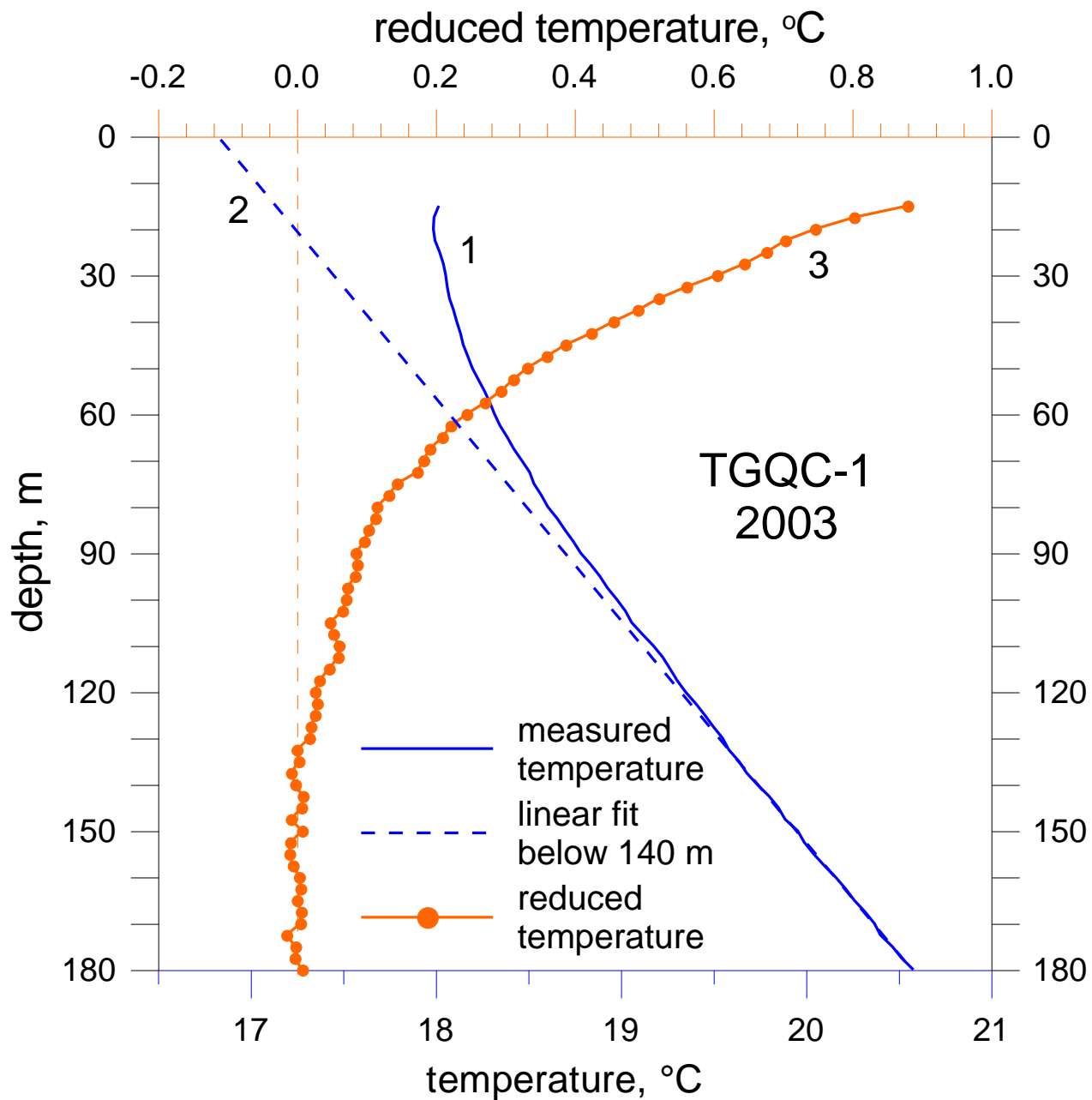


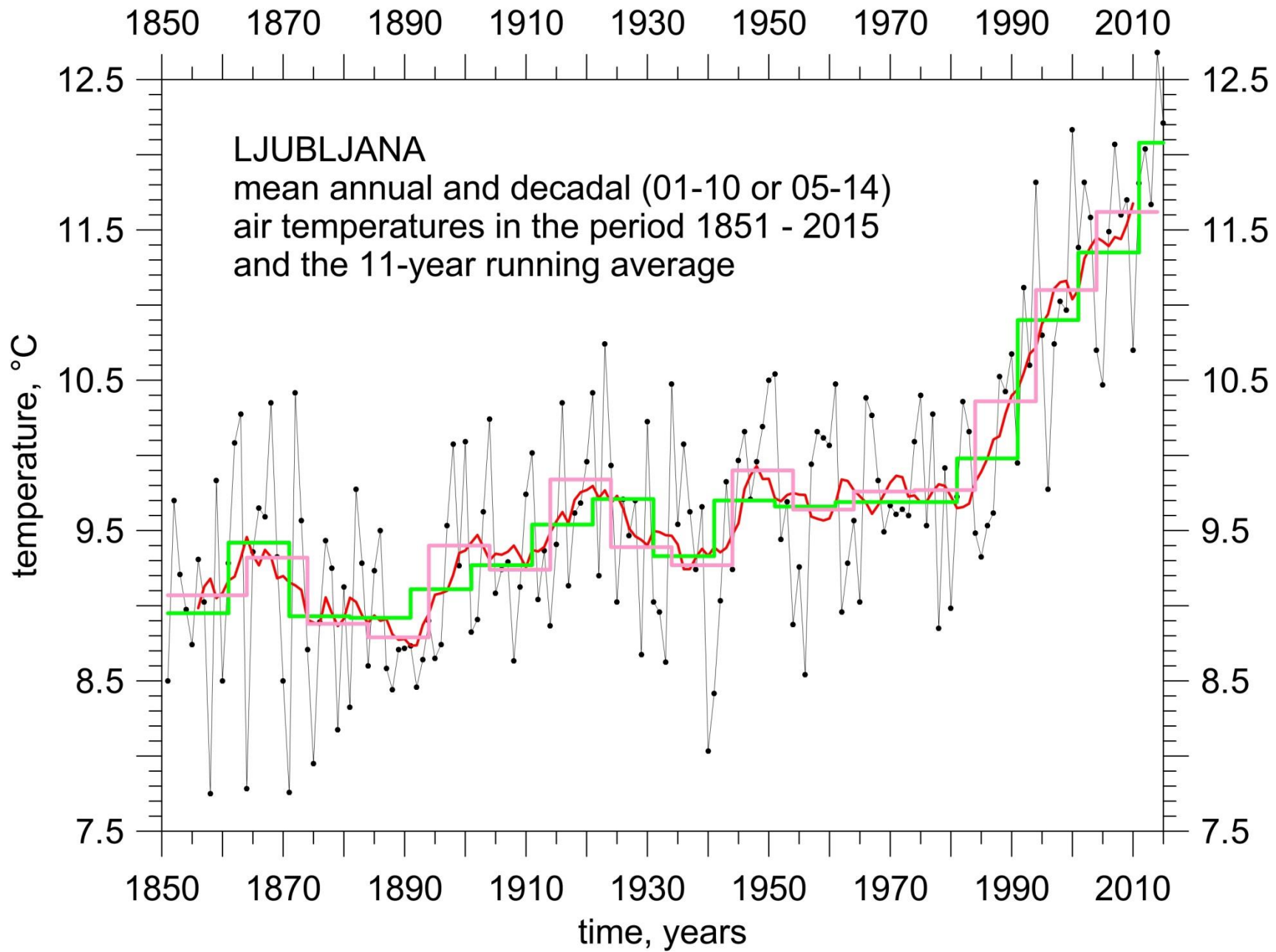
Temperature

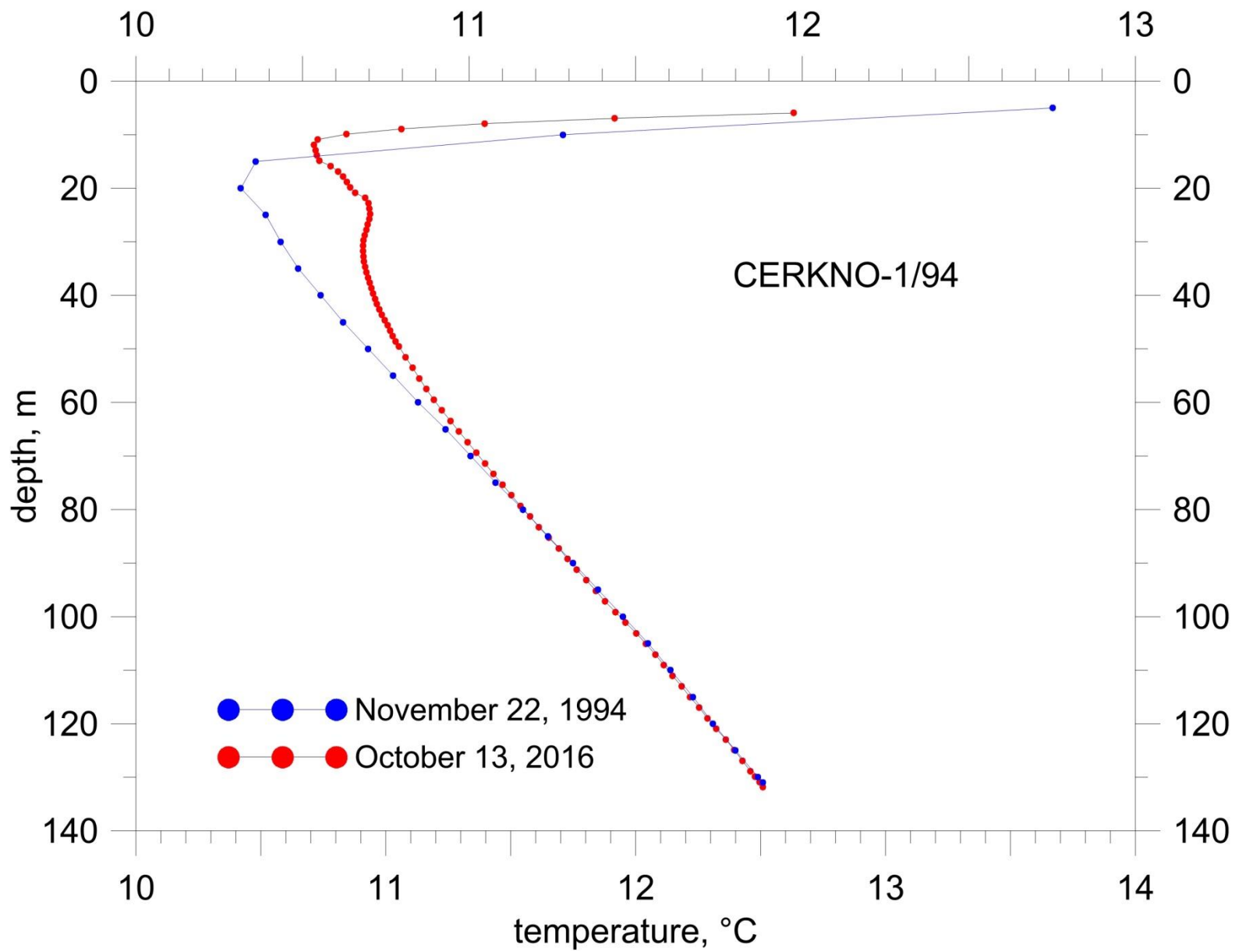
Reduced Temperature

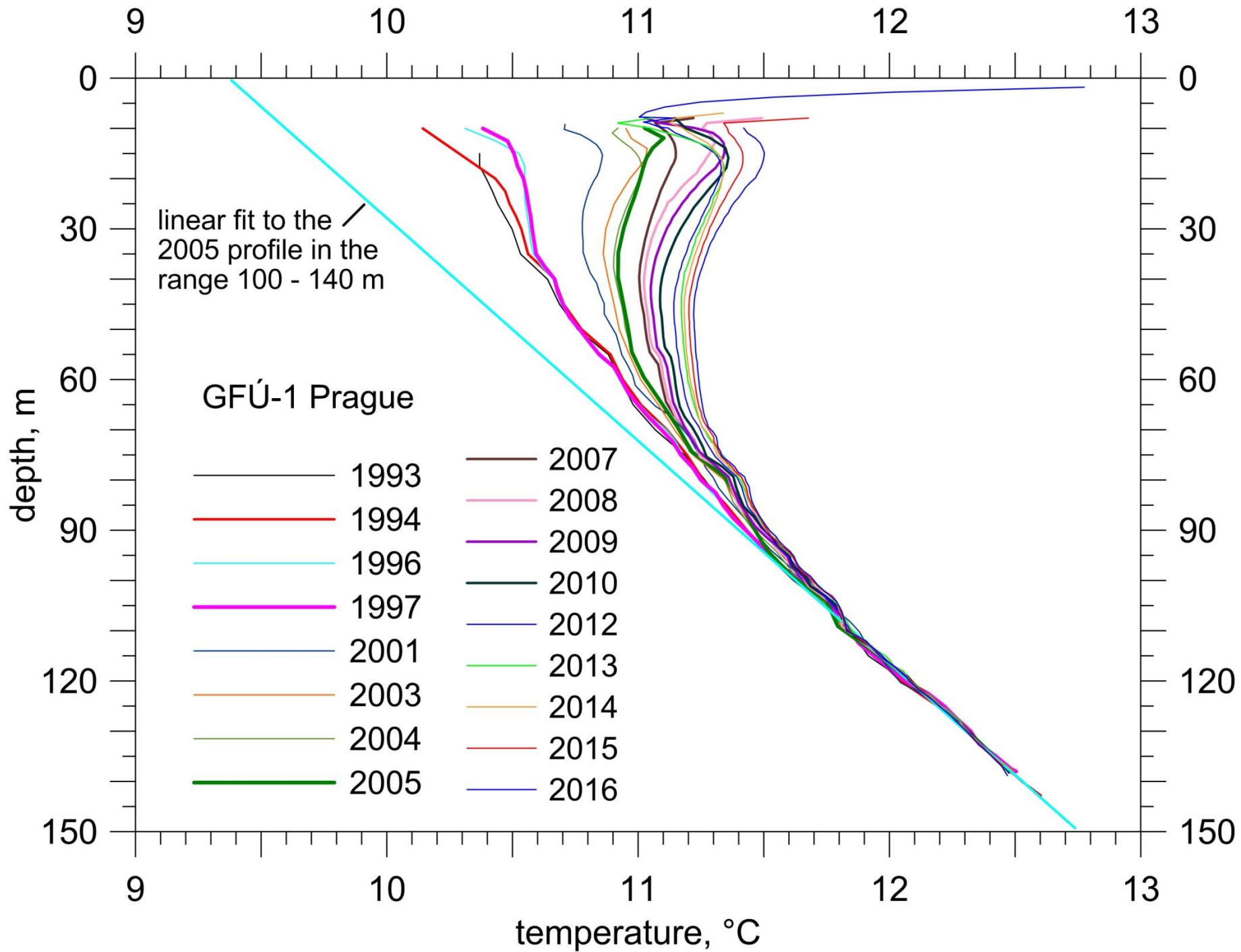
Depth

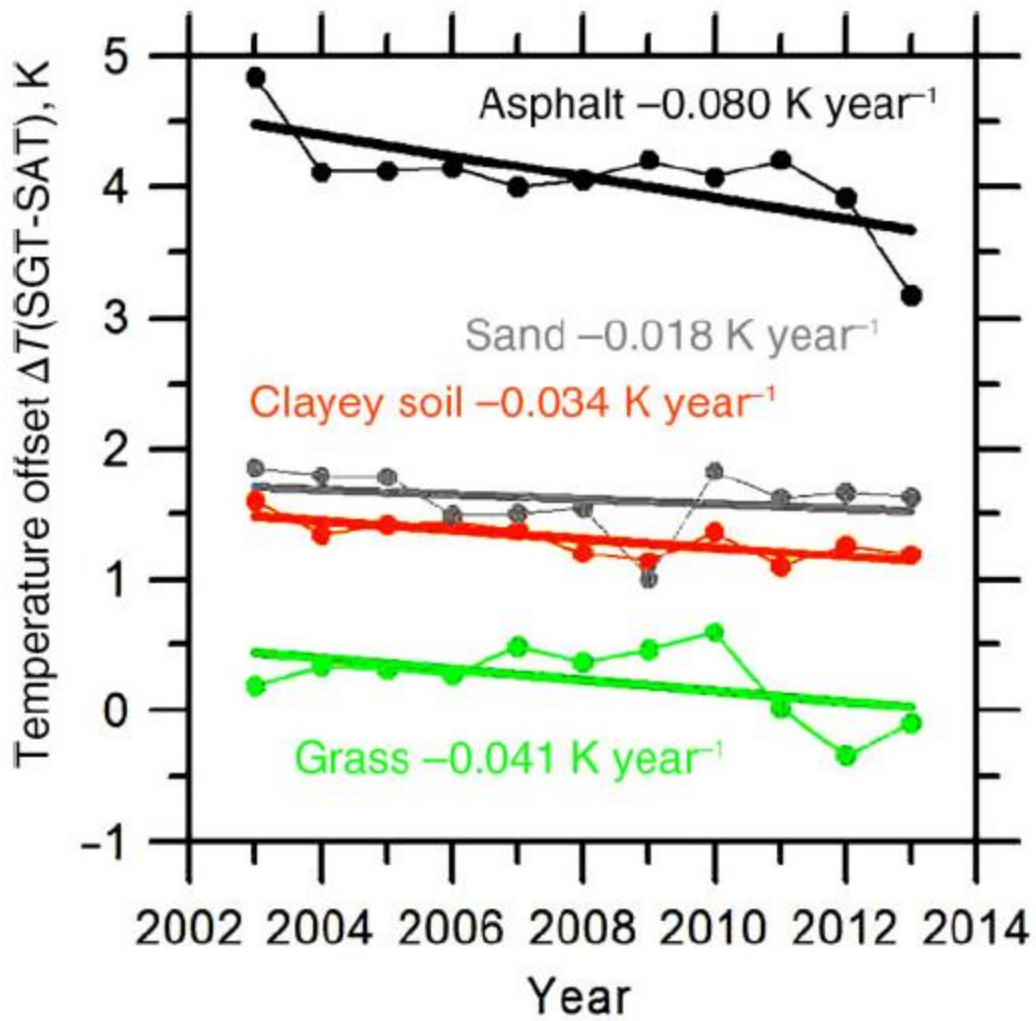


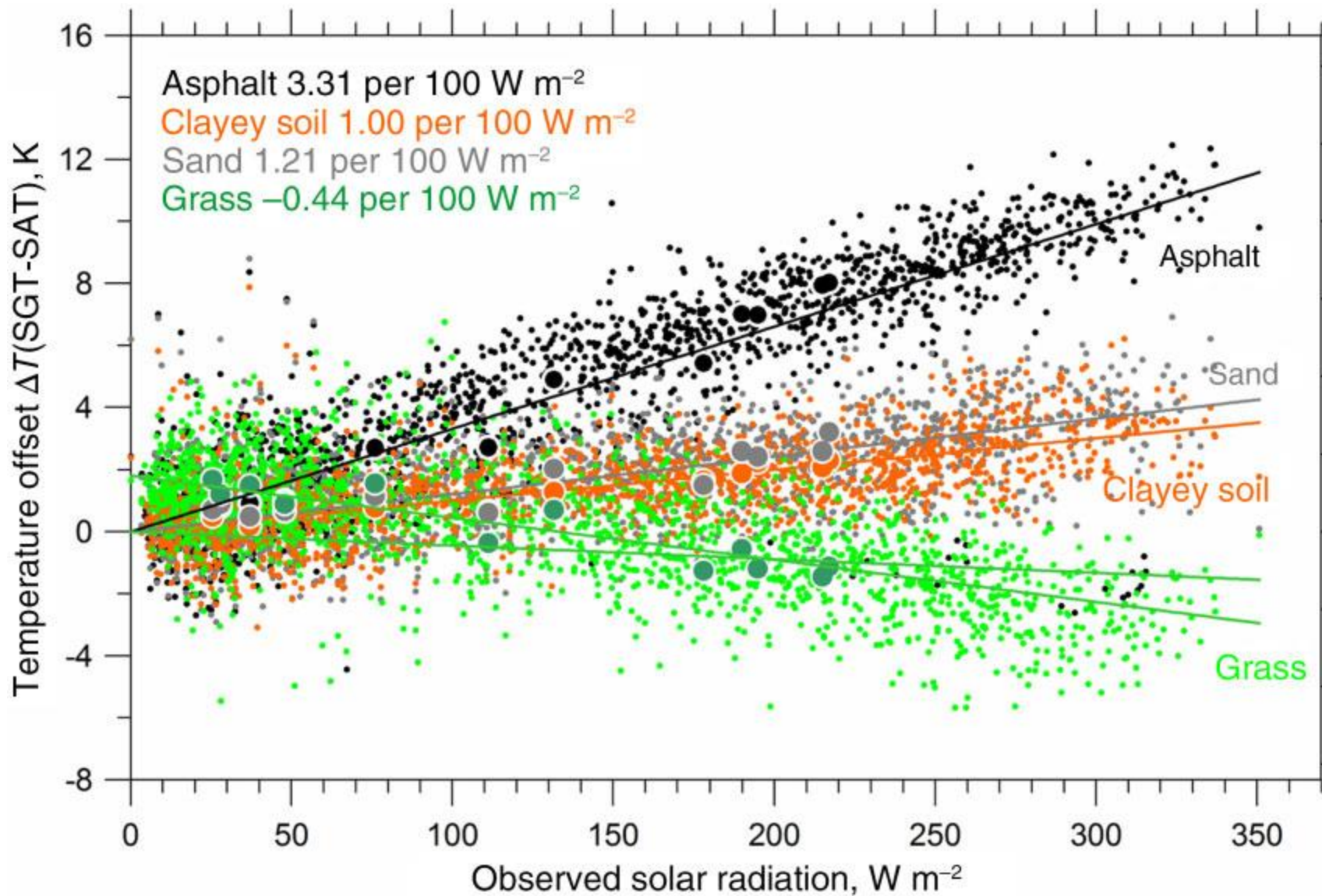


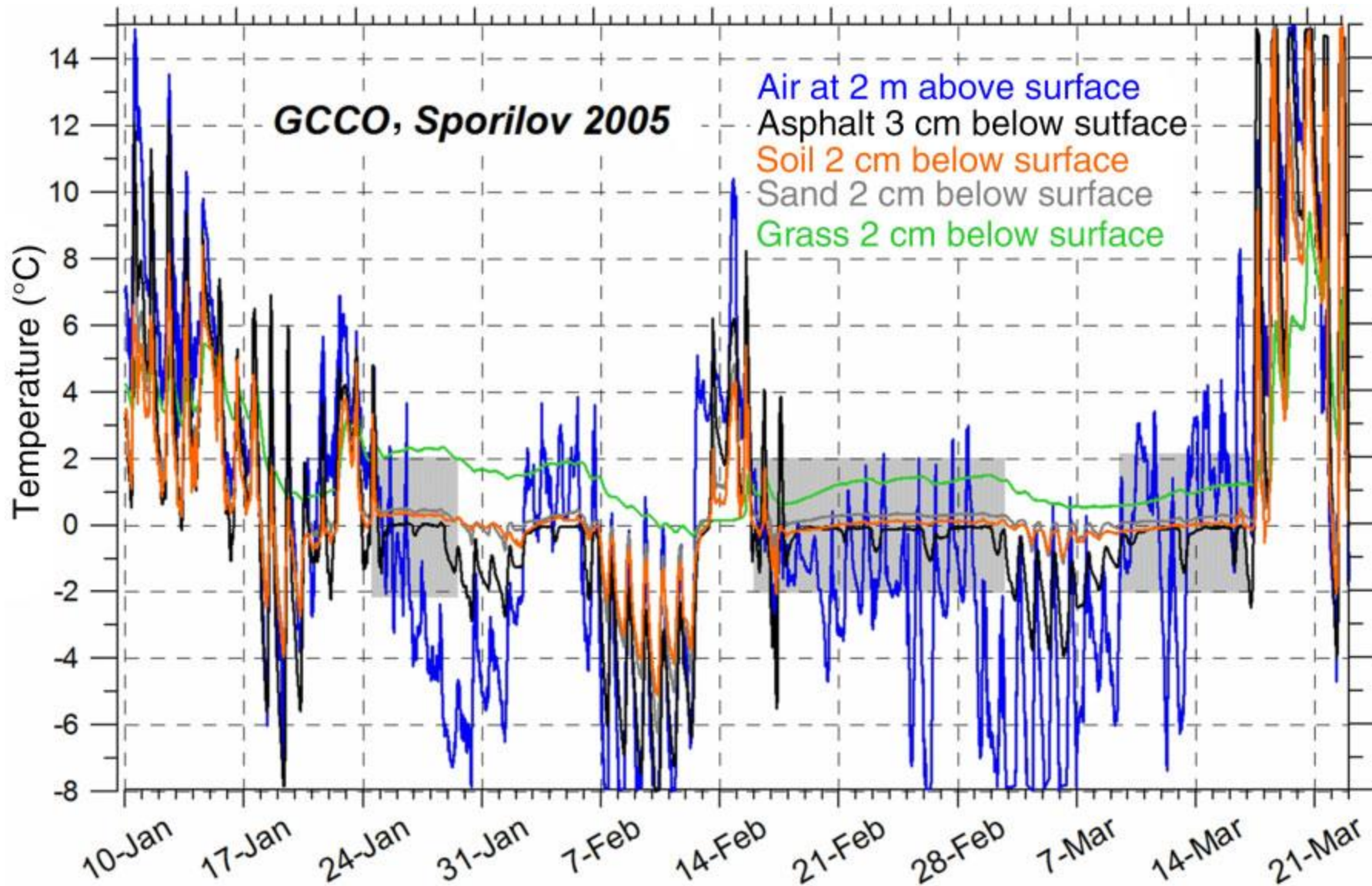


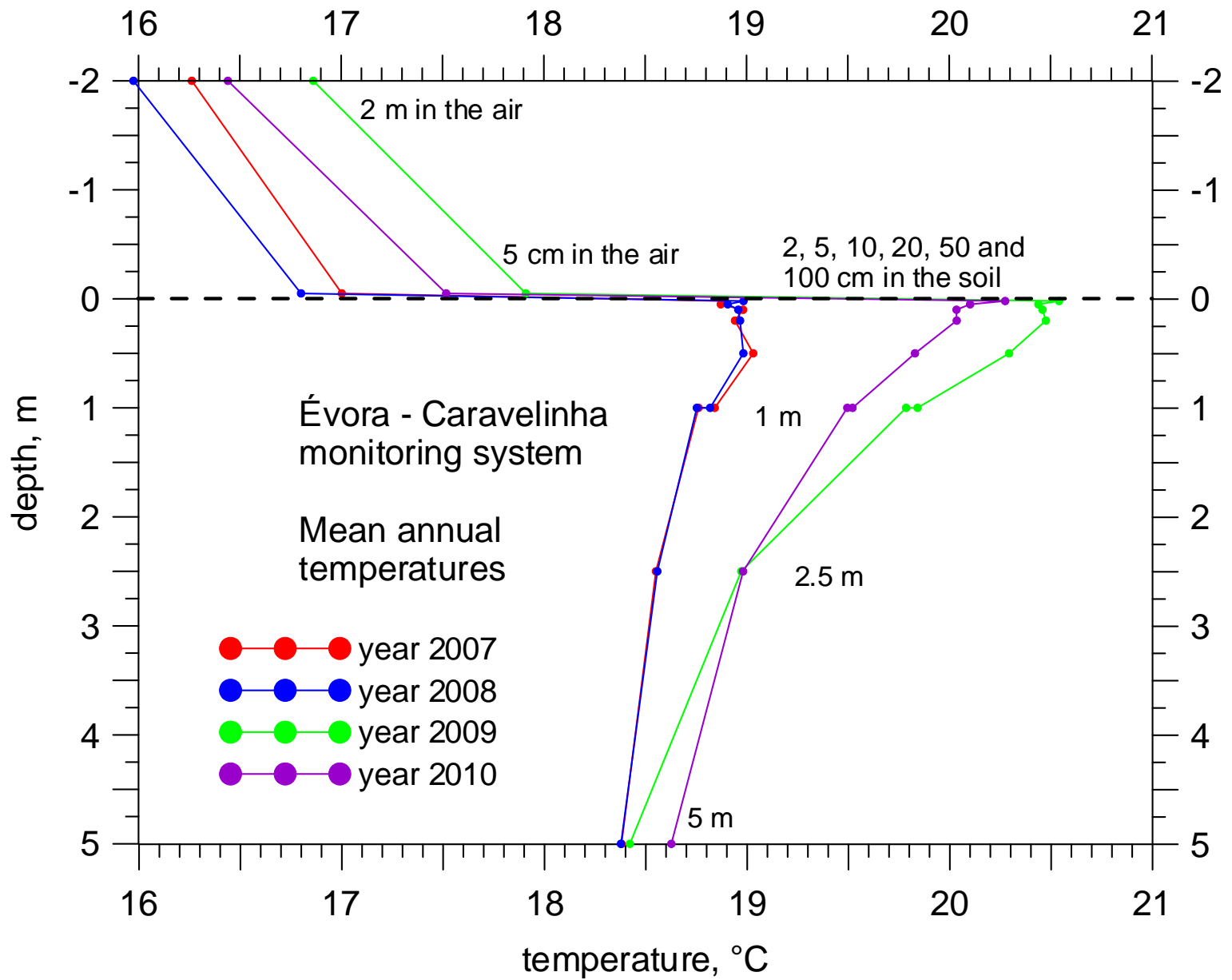


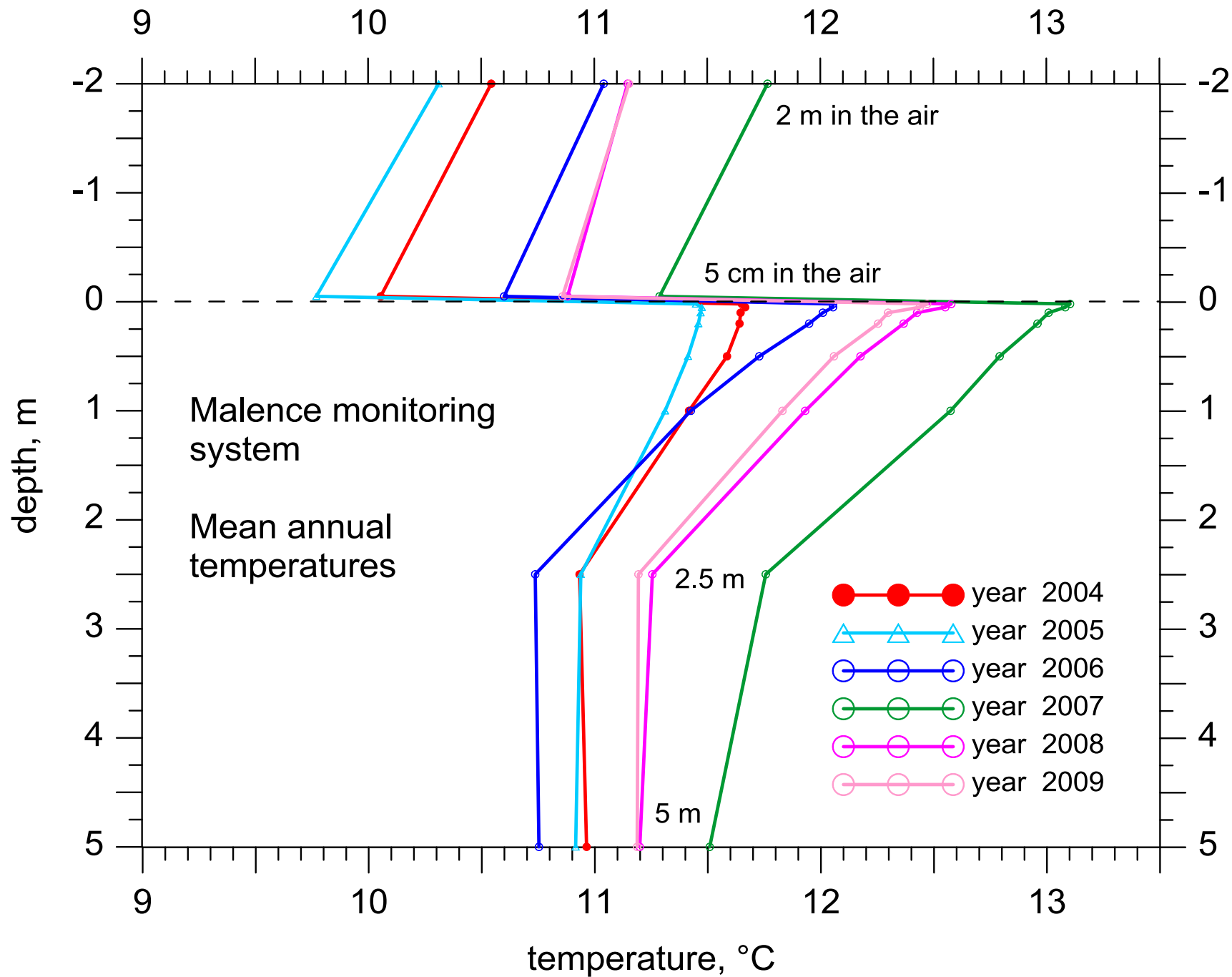


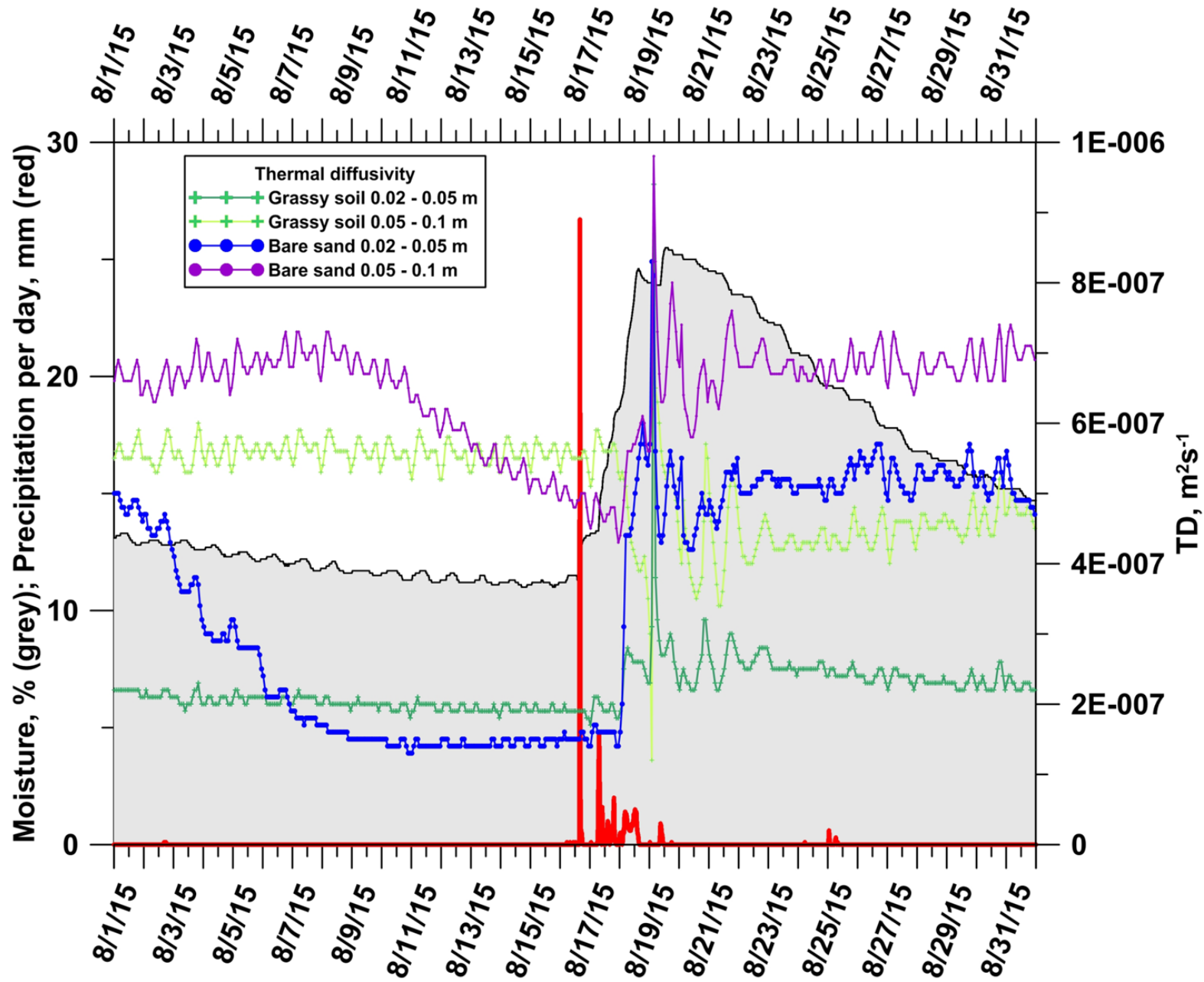












Conclusions

- The temperature monitoring has been running at 6 sites (4 in Czechia, 1 in Portugal, 1 in Slovenia)
- Data from Portugal and Slovenia are transferred daily to the server available to all partners), data from Czechia are either transferred to our server (Spořilov) or downloaded manually (Kocelovice, Bedřichov, Svojšice)
- The data are used in research of the coupling between the air, soil and bedrock temperatures and contribute to the knowledge of the energy balance of the Earth surface
- The observed data have applications in several other disciplines like meteorology, climatology, plant biology or exploitation and storage of shallow geothermal energy.