E6 Klett and Røros test site - update

FROSTDAGEN 2022

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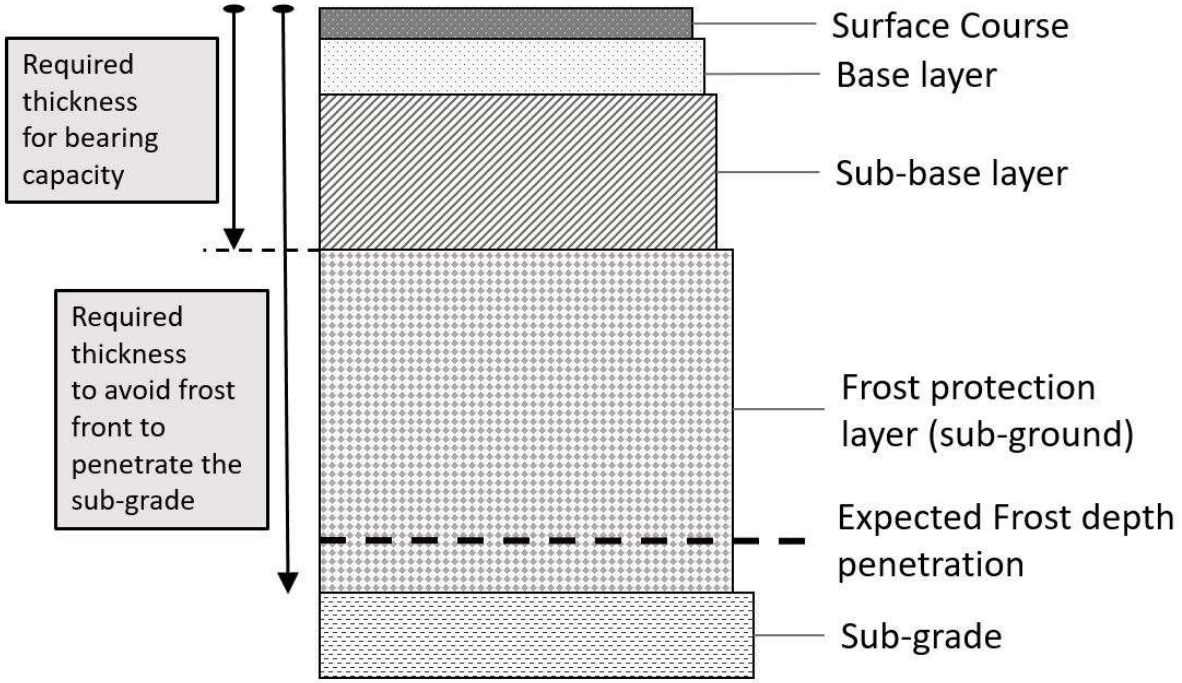
Norwegian University of Science and Technology

Scope

- Introduction
- Røros test site
- E6 test site

The frost protection layer concept

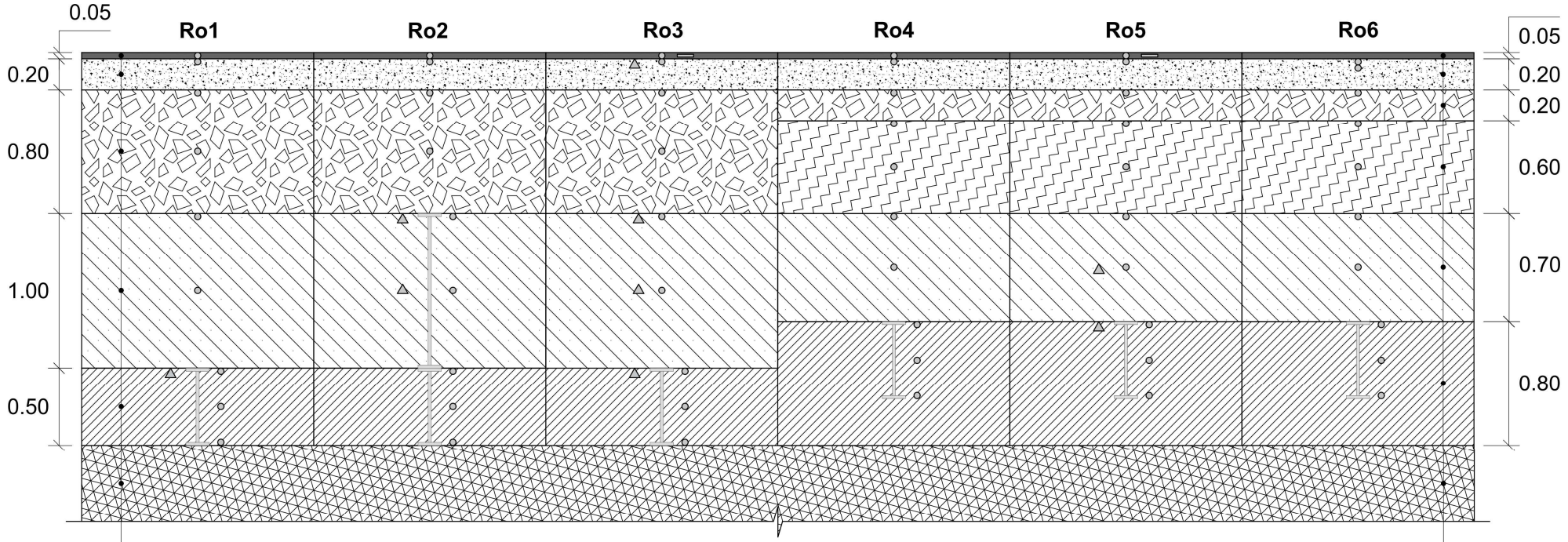


Modified from Aksnes presentation, 2016.

- Prevent frost to penetrate in natural soil
- Maximum thickness of road: 1,8 m to 2,4 m

Røros site

Røros test site – roads sections



Ro1 / Ro2 / Ro3
Asphalt 0/8 mm
Base 0/32 mm
Subbase 20/120 mm
Frost protection[1]
Silt
Subsoil (clay)

Legend:
- thermocouple
- moisture sensor
- frost heave sensor
- heat flux sensor

Ro4 / Ro5 / Ro6
Asphalt 0/8 mm
Base 0/32 mm
Subbase 20/120 mm
Lightweigth aggregates[2]
Lower frost protection 0/120 mm
Silt
Subsoil (clay)

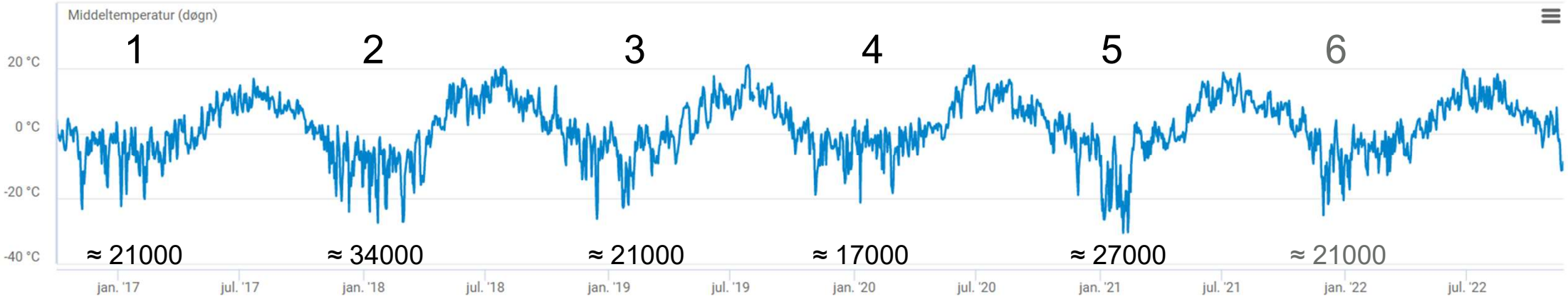
[1] Ro1 - 40/120 mm; Ro2 - 0/32 mm; Ro3 - 0/120 mm

[2] Ro4 - expanded clay 10/20 mm; Ro5 - expanded clay 0/32 mm; Ro6 - foamglass 10/60 mm

Temperature data

Freezing index in °C-h

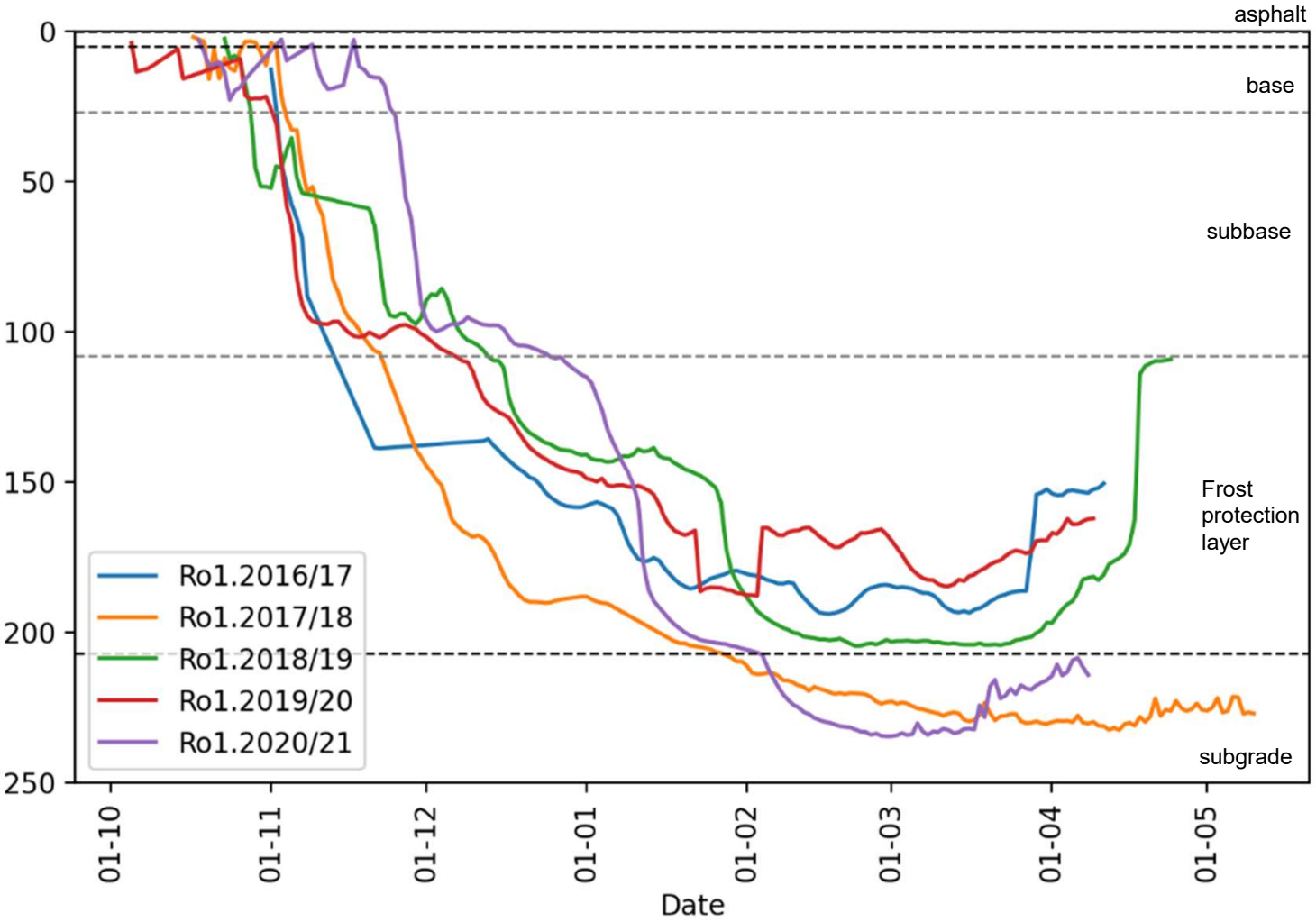
Røros airport



MAAT (°C):

1	2	3	4	5	6
1.25	1.05	1.95	2.15	1.40	2.05

Section Ro-1: 40/120 crushed rock



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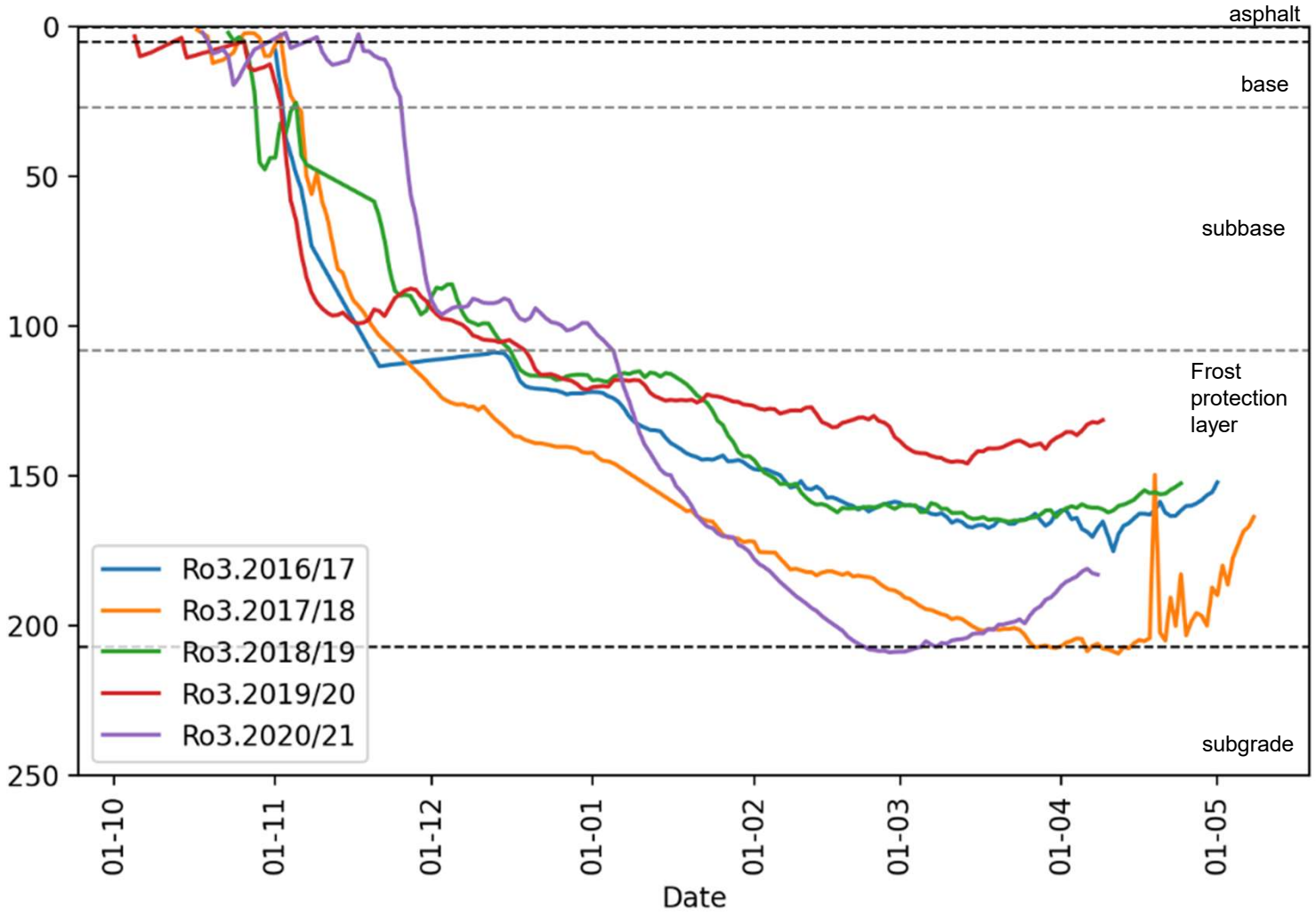
Section Ro-3: 0/120 crushed rock



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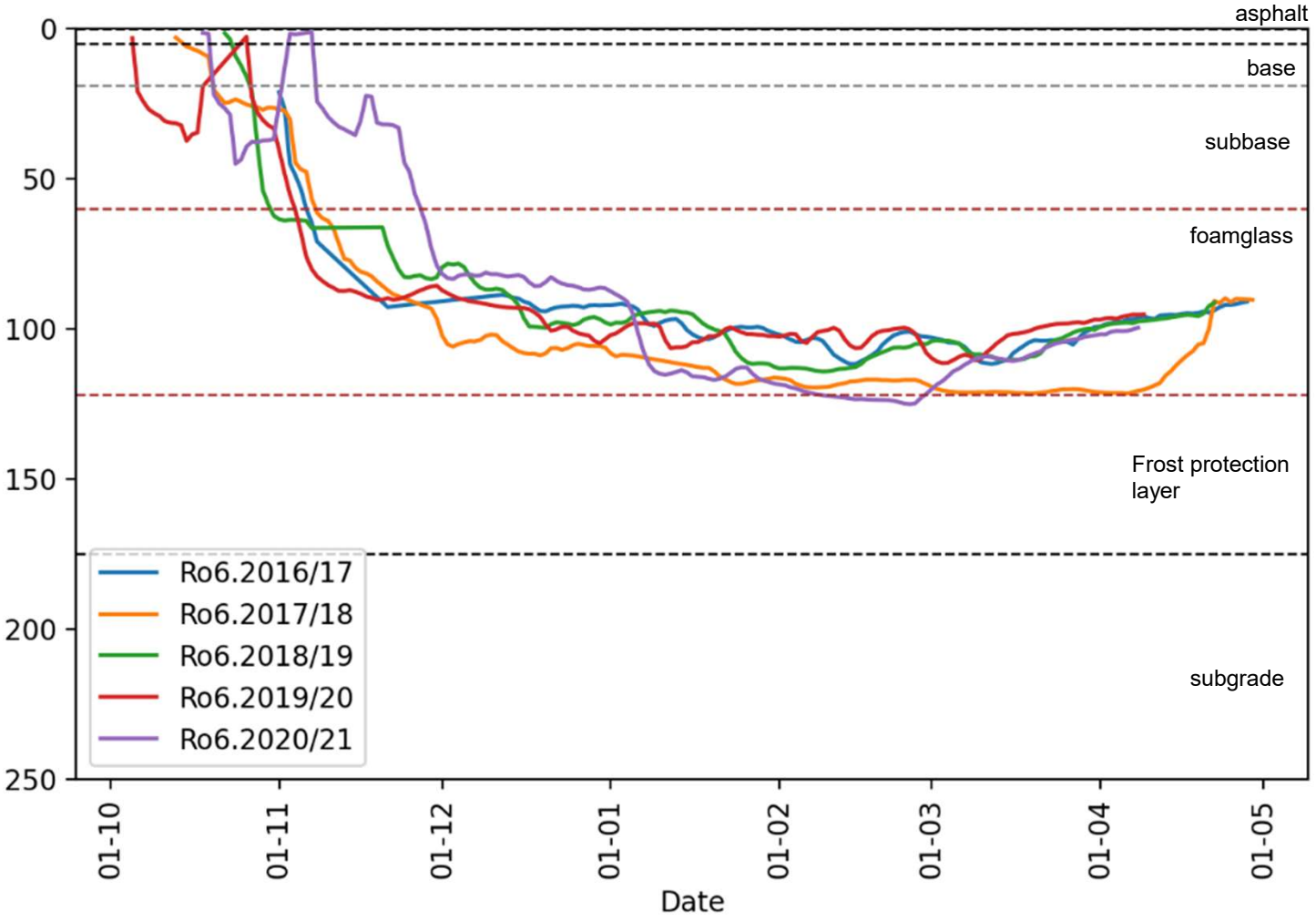
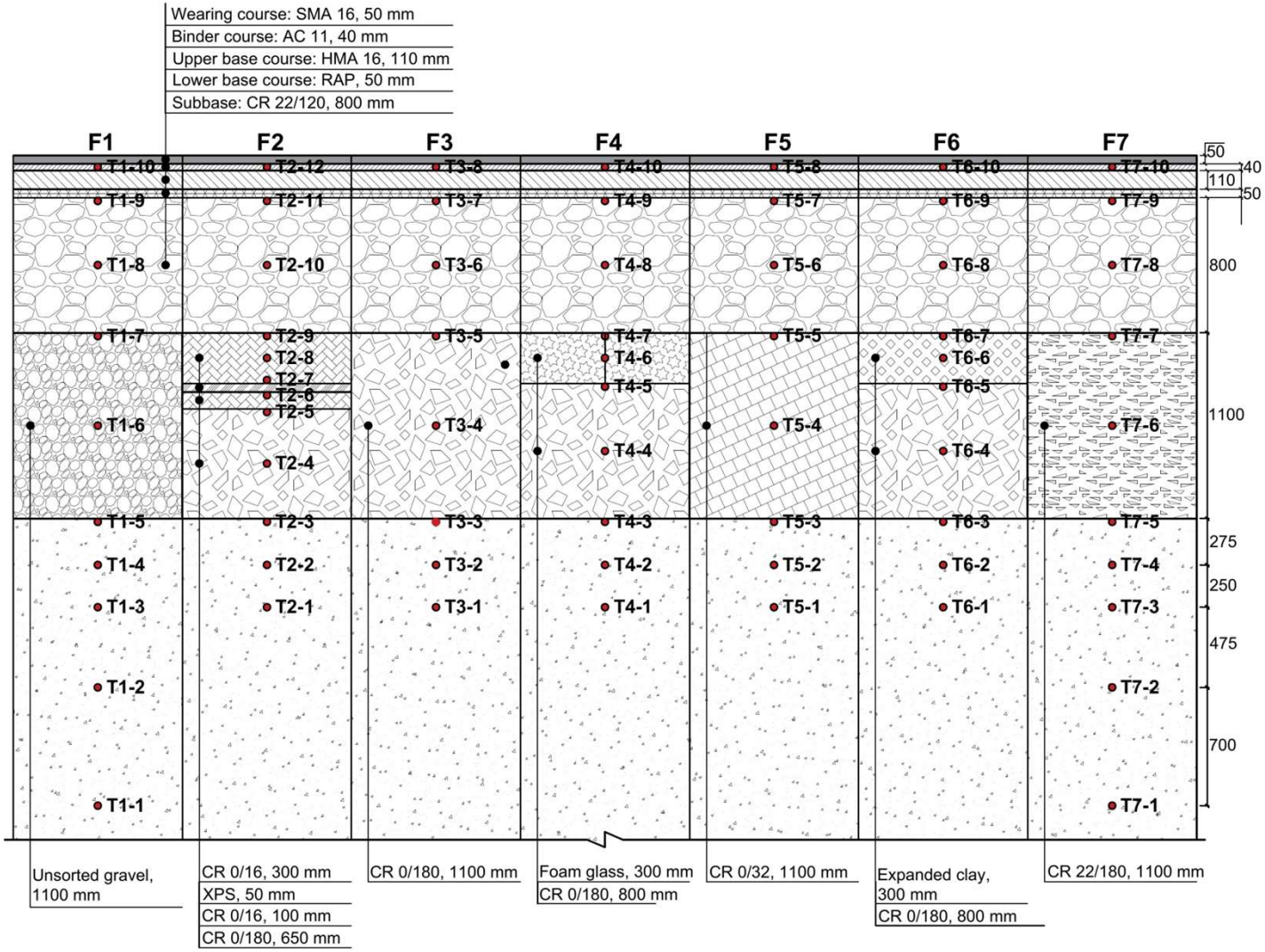
Section Ro-6: Foamglass / lightweight aggregrate



E6 - Klett site

E6 - Klett



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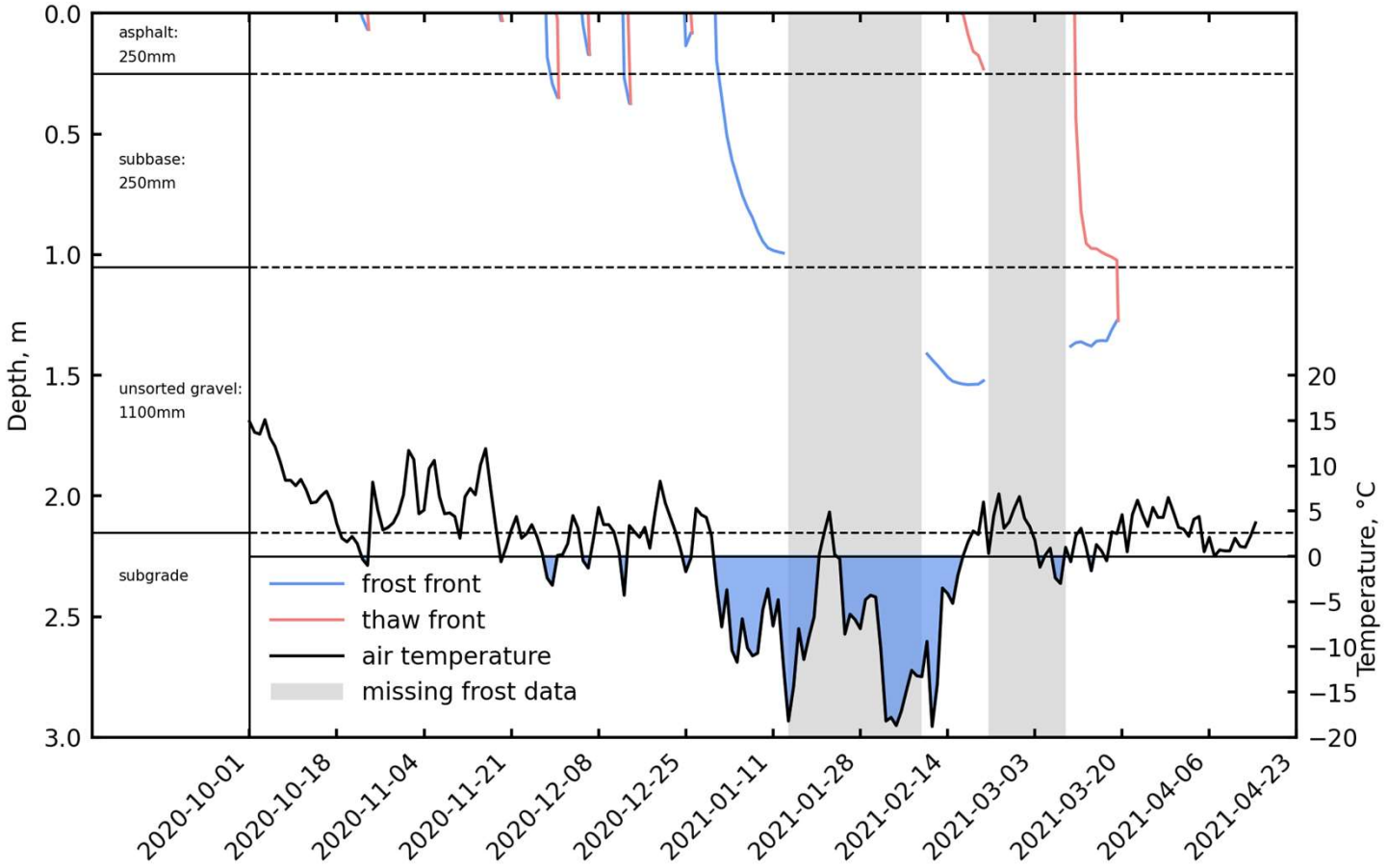
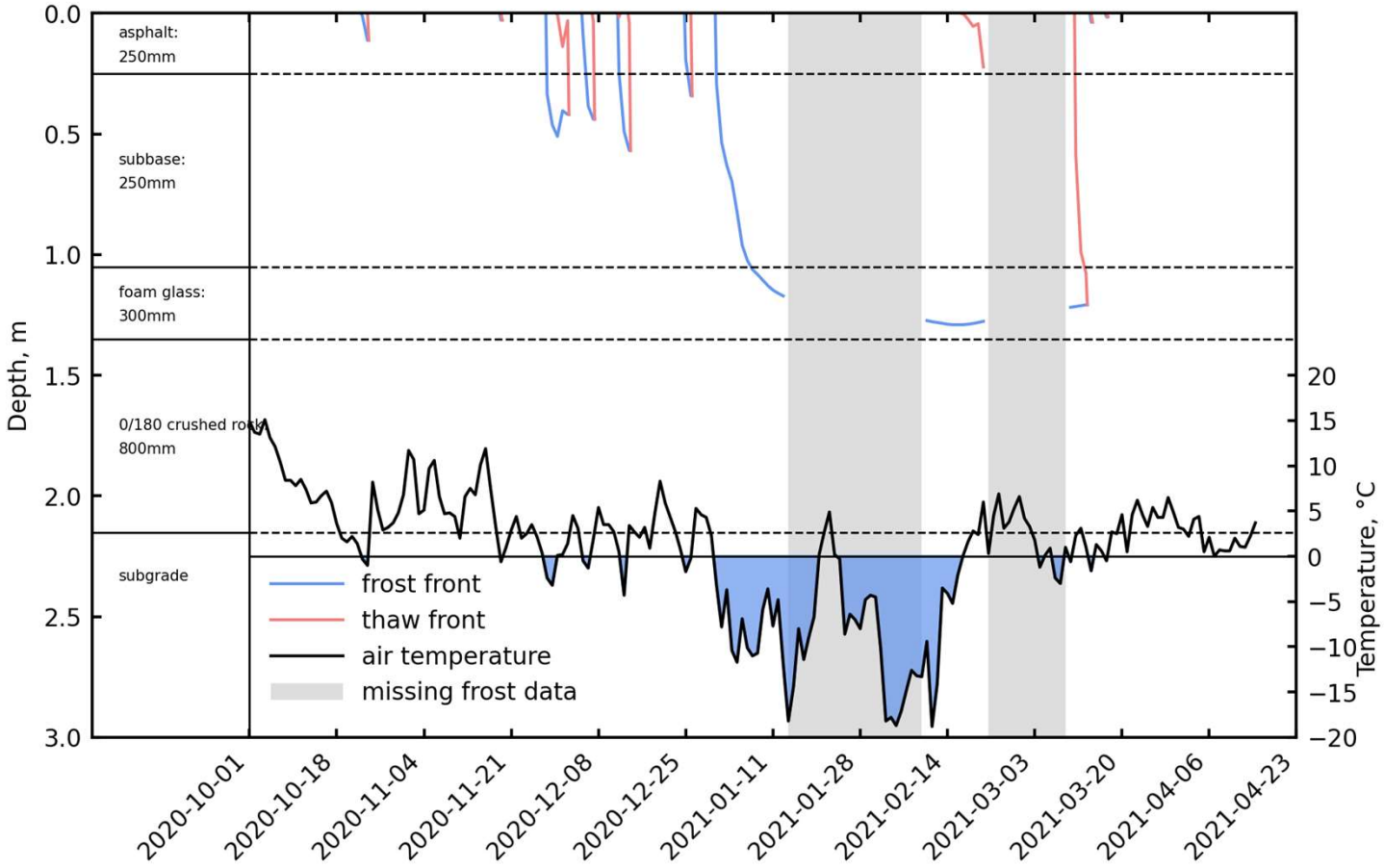
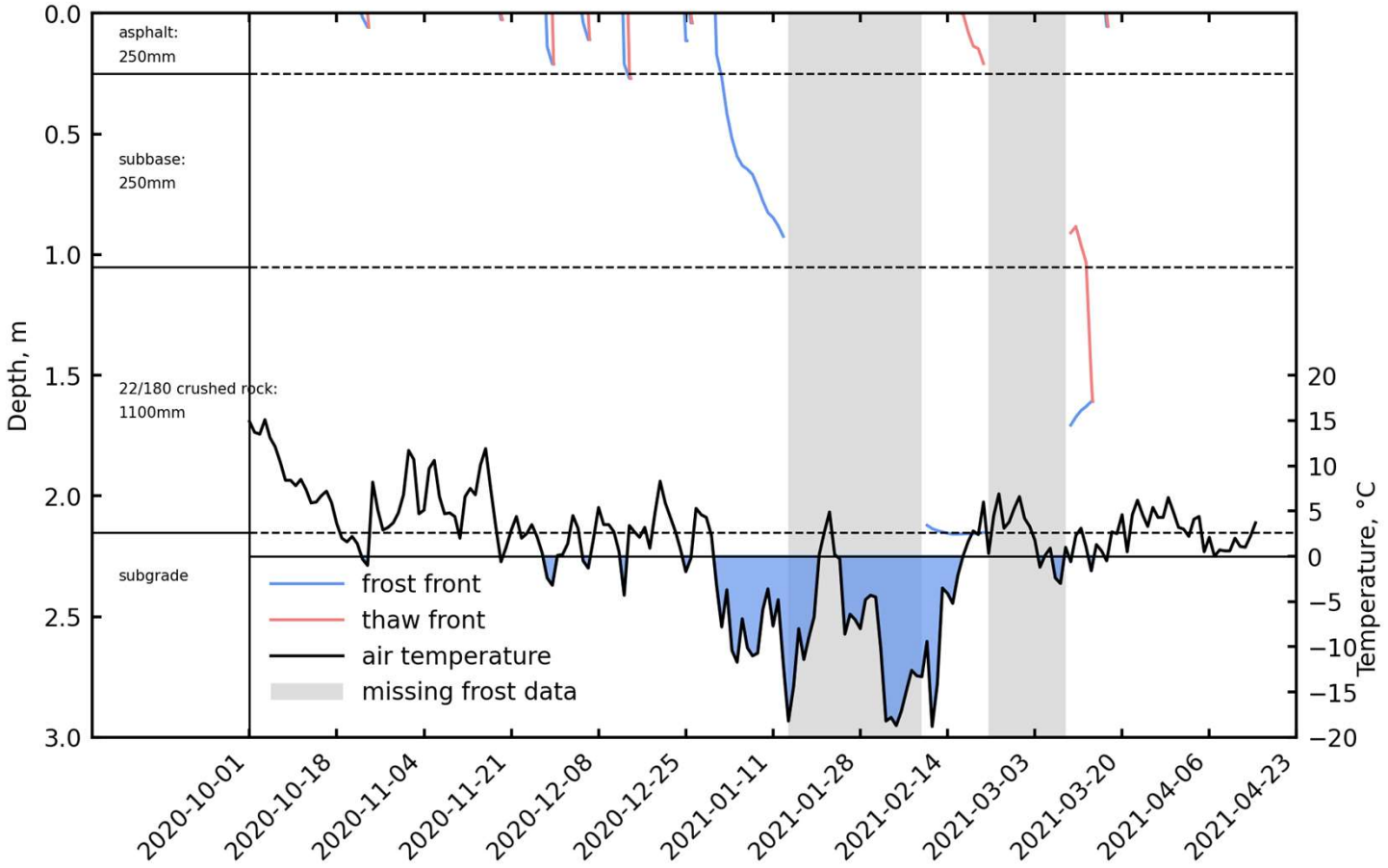
Section F1: unsorted gravel (F5: 0/32 crushed rock, F3: 0/180 crushed rock)



Section F4: foam glass (F6: expanded clay)



Section F7: 22/180 crushed rock



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Comments

- On frost protection
- On parametric analysis and data bank
- On frost design

Ongoing

- Pavement surface temperature model validation (Erapave)

- Heat flux analysis

- Script development for quick data analysis

Thank you!