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## Snow in HIRLAM

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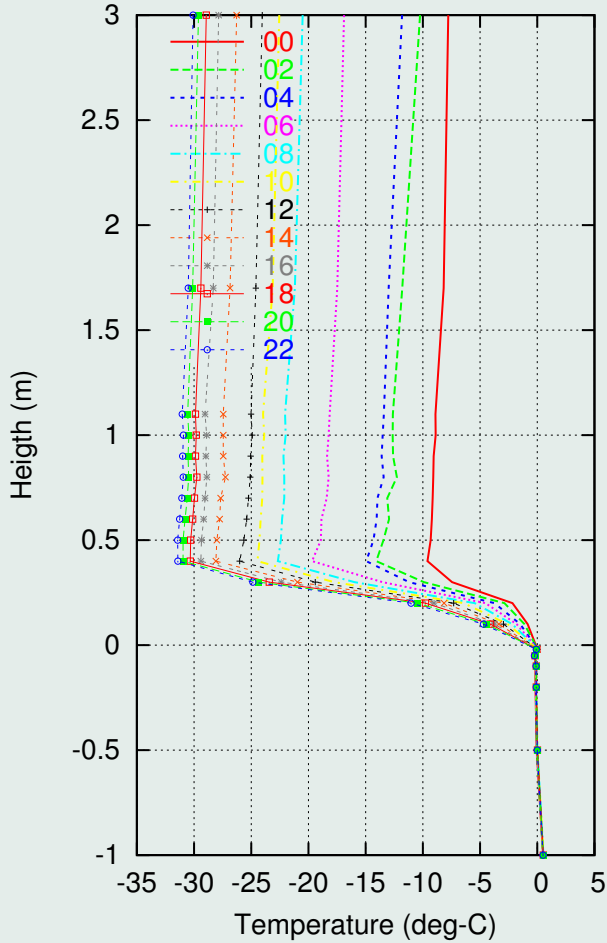
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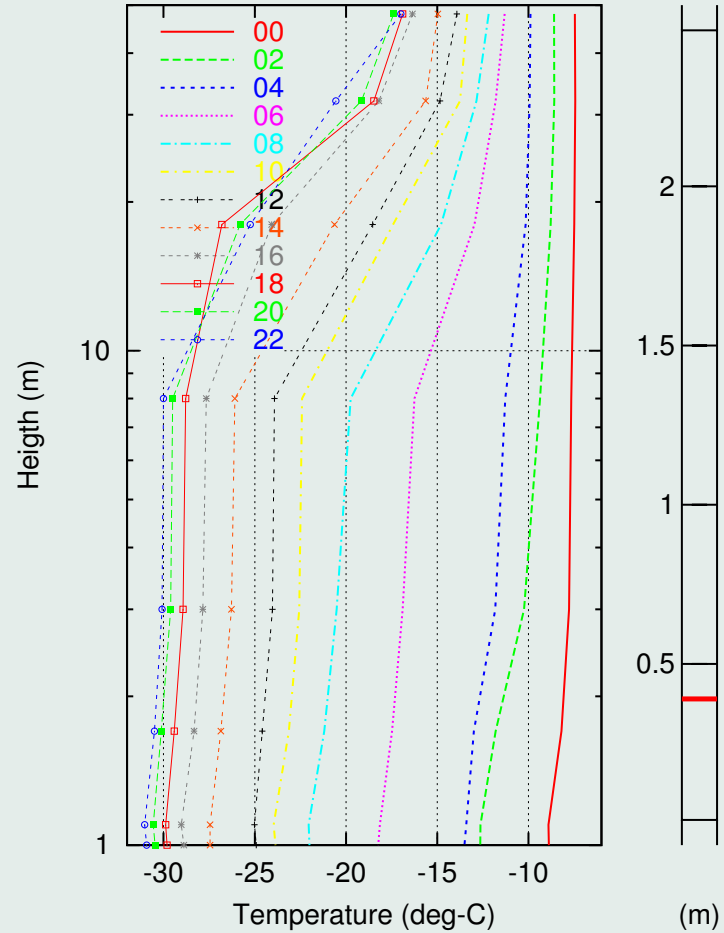
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20070111 soil-snow-mast low



20070111 soil-snow-mast high



Snow





## Snow effects and processes



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## Snow effects and processes

### Surface energy balance

- Insulation between soil and atmosphere
- Influence of snow on radiation fluxes
- Influence of snow on sensible and latent heat fluxes

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### Surface energy balance

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### Water cycle

- Snowfall
- Melting, evaporation, runoff

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### Wind

- Smoothing of surface by snow

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## Snow parametrizations



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## Snow parametrizations

### "Newsnow" parametrizations

- **Advanced treatment of soil and surface processes especially over snow/ice and in forest**
- **Based on ISBA, tiled and with heat diffusion in soil**
- **One layer snow scheme with snow melting, freezing**
- **Samuelsson et al, 2006. The land-surface scheme of the Rossby Centre regional atmospheric climate model (RCA3). SMHI, Meteorologi 122**

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### Snow variables

- Snow depth, density, fraction, snow water equivalent
- Snow albedo and emissivity
- Temperature of snow on open land, forest floor, trees, (sea and lake ice)
- Snowfall: convective, stratiform
- (Runoff, soil moisture, evaporation)

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## Snow descriptions

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## Snow descriptions

### Snow in data assimilation

- Assimilation of snow depth observations
- Development work ongoing - another presentation!

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## Snow descriptions

### Snow in data assimilation

- Assimilation of snow depth observations
- Development work ongoing - another presentation!

### Snow in surface description

- Snow climatology for start and backup
- 



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