

First Lagrangian Arctic air formation experiment (Larcform1) – data description

The dataset contains results from single-column models running the Larcform1 experiment. Setup and model descriptions are given or referenced in the corresponding paper.

Files contain hourly averages for one model per file of the following variables.

Fluxes are defined positive downward.

1-D Variables:

variable name	long name	units
time		(s)
ps	surface pressure	(Pa)
ts	surface temperature	(K)
prec	total rainfall	(kg/m ² /s)
prec	total snowfall	(kg/m ² /s)
clt	cloud cover	(1)
dsnow	snow thickness	(m. water euqivalent)
clivi	vertically integrated cloud ice	(kg/m ²)
prw	precipitable water	(kg/m ²)
rlds	surface downwelling longwave rad.	(W/m ²)
rlus	surface upwelling longwave rad.	(W/m ²)
rlds	clear-sky surface downwelling longwave rad.	(W/m ²)
rlut	top-of-atmosphere outgoing longwave radiation	(W/m ²)
rsdt	top-of-atmosphere incoming shortwave radiation	(W/m ²)
rlut	clear-sky top-of-atmosphere outgoing shortwave radiation	(W/m ²)
hl	latent heat flux	(W/m ²)
hs	sensible heat flux	(W/m ²)
ustar	friction velocity	(m/s)

2-D variables

t	temperature	(K)
cli	cloud ice	(kg/kg)
clw	cloud liquid water	(kg/kg)
cl	cloud fraction	(1)
rh	relative humidity w.r.t. water	(1)
q	specific humidity	(kg/kg)
u	zonal wind	(m/s)
v	meridional wind	(m/s)
p	pressure	(Pa)

Known issues:

Wind velocities (u,v) were constrained to the geostrophic wind in the CAM single column model. Vertically integrated cloud ice (clivi) in WUR-D91 is too low given the vertically resolved cloud ice (cli).