

Data description – band albedo of pure snow and snow contain BC and/or Dust (Broadband and RRTM narrowband)

The datasets described in this file provide data to calculate the broadband and RRTM narrowband albedo of pure snow and snow contains black carbon and/or dust. The figures produced using this data are published in paper *Dang et al., 2015, JGR*. Please refer to this paper for more detail.

1. Broadband (snow contain only BC or dust)

soot_band_albedos.mat: broadband albedo of snow contain soot

dust_band_albedos.mat: broadband albedo of snow contain dust

-Name of Data:

These are three letter combinations.

First letter: B=band albedo D=band albedo reduction from clean snow

Second letter: c=clear sky o=overcast sky

Third letter: a= allwave, v=visible n=near-IR

So Boa is the allwave band albedo for overcast sky.

- Dimension of Data (take Boa and Dcv as example):

Boa(30x43)

Column1 is snow grain size (r)

Columns 2-43 are the 42 BC concentrations from 0 to 1

Dcv is the visible band albedo for clear sky

Dcv(42x31)

Column1 is the BC concentrations (c) from 0 to 1

Columns 2-30 are the snow grain sizes (r)

2. Broadband (snow contain BC and dust)

mix_band_albedos.mat: broadband albedo of snow contain both dust and soot

-Name of Data:

These are four combinations and a number.

First letter: B=band albedo D=band albedo reduction from clean snow

Second letter: t

Third letter: c=clear sky o=overcast sky

Forth letter: a= allwave, v=visible n=near-IR

number: 100 = snow grain radius r = 100 microns

1000 = snow grain radius r = 1000 microns

So Btca100 is the allwave band albedo for clear sky, when snow contain both BC and dust, for snow grain size of 100 microns.

- Dimension of Data (take Boa and Dcv as example):

Btca100(42*6)

Row 1-42: are the 42 BC concentrations from 0 to 1 (variable c in mat)

Column 1-6: are the 6 dust fractions from 0 to 0.01 (variable f in mat)

3. RRTM narrow band

RRTM-band albedo (RRTM bands 2-13)

soot_band_albedos_RRTM.mat: 12 RRTM narrowband albedo of snow contain soot

- Name of Data:

Btmpc(o): RRTM-band albedo for clear sky (overcast sky)

Dtmpc(o): RRTM-band albedo reduction from clean snow for clear sky (overcast sky)

- Dimension of Data:

12*30*42

12: RRTM bands 2 - 13

30: the snow grain sizes (variable r in the mat)

42: the BC concentrations from 0 to 1 (variable c in the mat)