Broadband albedo of clean snow

Technical note

1. Kokhanovsky

01.04.2020

The broadband (BBA) spherical albedo of clean snow depends on just one parameter – the snow grain size d. Therefore, one can approximate the BBA of clean snow by a simple one-parametric equation. This equation has the following form:

, (1)

The coefficients are given in Table 1.

Table 1. The coefficients for the parametrization of spherical albedo

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| a | b | c |  | ,microns |
| 0.6420 | 0.1044 | 0.1773 | 158.62 | 2448.18 |

For the plane albedo, Eq.(1) is also valid. However, all parameters are calculated via the polynomial fit with respect to the cosine of the solar zenith angle *x*. For instance, it follows

. (2)

.

Table 2. The coefficients for the parametrization given by Eq.(2)

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
| a | 0.7389 | -0.1783 | 0.0484 |
| b | 0.0853 | 0.0414 | -0.0127 |
| c | 0.1384 | 0.0762 | -0.0268 |
| , microns | 187.89 | -69.2636 | 40.4821 |
| ,microns | 2687.25 | -405.09 | 94.5 |