

## **IPRT polarized radiative transfer model intercomparison project**

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The polarization state of electromagnetic radiation scattered by atmospheric particles like aerosols, cloud droplets or ice crystals includes much more information about the optical and microphysical properties than the total intensity only. For this reason an increasing number of polarimetric observations are performed from space, from the ground and from aircraft. Polarized radiative transfer models are required to interpret and analyze the measurements and to develop retrieval algorithms from polarimetric observations. In the last years a large number of new codes have been developed, mostly for specific applications.

The International Polarized Radiative Transfer (IPRT) working group of the International Radiation Commission (IRC) has published an extensive set of benchmark data which can be used to validate new polarized radiative transfer models. The data includes simple setups with only one layer and Rayleigh scattering to rather sophisticated setups with a cloud embedded in a realistic standard atmosphere above an ocean surface. The benchmark data was established based on accurate polarized radiative transfer calculations using six models including deterministic and Monte Carlo approaches. In a next step a model intercomparison for three-dimensional model atmospheres is performed. Examples of the already published benchmark results and also first results of the intercomparison in three-dimensional geometry are presented.

The description of all test cases as well as the already established benchmark results can be obtained at the IPRT website (<http://www.meteo.physik.uni-muenchen.de/iprt>).