We have installed a Cimel CE351 « CamLum » All-Sky Camera for the monitoring and the study of the clouds in Lindenberg (Germany) at the meteorological observatory MOL-RAO of the German Weather Service (DWD). CamLum provides every 5 minutes a high-resolved picture of the sky (1,300,000 of pixels), and values of the spectral radiances for 6 visible spectral channels (406, 438, 494, 510, 560, and 628 nm) for 15,840 directions of observations. In a first step we present the system, its installation in Lindenberg, and the results of the validation of the radiance measurements (comparison to radiative transfer simulations and spectral irradiance measurements). In a second step we present the first developments of a cloud algorithm for a cloud mask, based on simulations with a 1-D radiative transfer code (with the help of AOD measurements from Cimel CE318 sunphotometer). In a last step, we present potential synergies with other All-Sky or cloud-observing systems (e.g. in thermal infrared) running at MOL-RAO in Lindenberg, and discuss about the most appropriate methods for the monitoring of the clouds.