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New developments in the Canadian land data assimilation system

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A new version of the Canadian Land Data Assimilation System (CaLDAS) is currently under development at the Meteorological Research Division (MRD) of Environment Canada (EC). Based on a simplified variational technique with a 24-h minimization period, CaLDAS assimilates screen-level observations (air temperature and humidity) in order to specify soil moisture and surface temperature initial conditions for EC's numerical prediction systems. As part of this development effort, several aspects of the assimilation system are being examined, including the specification of background and observation errors, the minimization process, and the inclusion of space-based remote sensing data (e.g., from L-band radiometers such as SMOS). At the conference, the new structure of CaLDAS will be presented, with special emphasis on these three aspects. Preliminary results obtained in the context of the National Agro-Environmental Standards Initiative (NAESI) will also be presented.