

Level-2 Cloud products derived from the EPS-SG/3MI mission – A first assessment

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The EPS-SG Multi-View, Multi-Channel, Multi-Polarisation Imaging mission (3MI) was launched in August 2025 on board of the EPS-SG SAT-A [1]. 3MI is a stop-and-stare radiometer dedicated to characterisation of the microphysical properties of the atmosphere for air quality, NWP, atmospheric composition and climate monitoring. 3MI consists of two detectors (VNIR and SWIR) providing multi-spectral (12 bands from 410 to 2130 nm), multi-polarisation (three polarisation acquisitions at +60°, 0°, and -60° for 9 bands), and multi-angular (up to 14 views) images of the Earth TOA outgoing radiance in reflector factor units. After a successful commissioning phase for the L1 products was finalised in the summer 2026, the L2 products evaluation started.

These multi-spectral, multi-polarisation and multi-angular characteristics allow 3MI to provide cloud information beyond what is possible from other intensity-only instruments. The L2 cloud processing algorithm fully exploits these aspects derived from the rich information content. In addition to providing the “standard” cloud parameters [2], 3MI allows the analysis of the angular variation of some parameters (e.g; cloud mask, cloud albedo, or cloud pressure), each angle being associated to a different path into the atmosphere. Further parameters are also partly or fully derived from the multiangle polarisation (cloud phase in polarisation, cloud Rayleigh pressure, vertical extent and multi-layer flag) [3, 4, 5, 6]. The algorithm benefits from synergistic VII information to reduce artefacts due to parallax effects. Here, we will give an overview of the L2 products available or under development, the expected performances, the validation plan and a timeline of what can be made available in near-real-time.

References

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