

MTG-IRS L2 offline monitoring toolkit

Harshitha Bhat ⁽¹⁾, C. Goukenleuque ⁽²⁾, M. Crapeau ⁽³⁾, S. Stapelberg ⁽³⁾, D. Coppens ⁽³⁾

⁽¹⁾ *CLC Space GmbH*

Kirchstrasse 4, Alsbach, Germany

Harshitha.Bhat@external.eumetsat.int

⁽²⁾ *HAMTEC Consulting Ltd*

12 Tentercroft Street, Lincoln, Lincolnshire, LN5 7DB

Cedric.Goukenleuque@external.eumetsat.int

⁽³⁾ *EUMETSAT*

Eumetsat Allee 1, 64295 Darmstadt

Dorothee.Coppens@eumetsat.int

ABSTRACT

The upcoming Infrared Sounder (IRS) aboard the Meteosat Third Generation sounding satellite (MTG-S) is designed to significantly enhance weather forecasting capabilities by providing high-resolution, four-dimensional data on atmospheric temperature, water vapor, and ozone profiles. Operating with high vertical, horizontal, and temporal resolution (every 30 minutes over Europe), IRS aims to improve the accuracy of numerical weather prediction (NWP) models, leading to more reliable forecasts. To ensure the effectiveness of IRS measurements for accurate forecast models, the quality of L2 products requires rigorous validation and continuous monitoring. EUMETSAT has developed a dedicated offline monitoring toolkit—MOVIT (MONitoring & Validation Integrated Tool)—for this purpose. MOVIT will undertake thorough validation during the commissioning phase of IRS and will continue to serve as a routine monitoring tool thereafter. Here we present an overview of MOVIT's capabilities including cross-validation with other sounding instruments such as IASI, comparisons against climate models, and rigorous quality control measures.