Sentinel-4 and Sentinel-5 Validation Preparation

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Acknowledgements: ESA Sentinel-4 and Sentinel-5 project teams, L2 consortia led by DLR and S&T, S-4/-5 Mission Advisory Group
AC-VC Whitepaper ‘Geo-AQ Validation Needs’

• Geo-AQ Constellation = GEMS + S4 + TEMPO + LEOs
• Set inter-mission consistency targets for Constellation Products
• Identifies activities
  o performed consistently for each mission
  o addressing new Geo-AQ challenges
  o establish and monitor inter-mission consistency
• Recommendations

→ GEMS Validation Announcement of Opportunity released April 2020

→ Joint Sentinel-4/-5 Calibration Validation Plan (current draft)
Ground-based Sky and Solar Occultation measurements with S4 and S5 PFM

- Under consideration
- After on-ground characterization and calibration
- Using front-end of Pandora
- Collocated TCCON and Pandora measurements

<table>
<thead>
<tr>
<th></th>
<th>Sky radiance (scattered solar)</th>
<th>Solar irradiance (occultation)</th>
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<tbody>
<tr>
<td><strong>L1b</strong></td>
<td>Evaluate fit residuals (UVN) to identify spectral features and verify ISRF</td>
<td>Evaluate fit residuals, compare NIR-SWIR with TCCON, to identify spectral features and verify ISRF</td>
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<tr>
<td><strong>L2</strong></td>
<td>Compare with Pandora to verify trace gas columns (UV-vis)</td>
<td>Compare with Pandora (UVN) and TCCON (NIR-SWIR) to verify trace gas columns (UV-vis-SWIR) and surface pressure (NIR)</td>
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