STAC + CEOS-ARD

Matthias Mohr
The Past: STAC CARD4L Extension

- Complex
- Only SR, ST, NRB, POL
- Many card4l: fields that should live in separate STAC extensions
- Outdated name
Tasks

- Create new CEOS-ARD STAC extension
- Create specific STAC extensions for missing fields
- Work with CEOS on
  - Clarifications
  - Single template (see Radar)
  - “Profiles”
- Make (example) data available
- Deprecate STAC CARD4L extension
- Align with ISO/OGC work?
OGC/ISO ARD <-> STAC CEOS-ARD

- Check how this relates to and can benefit the ISO/OGC ARD work
  - Ideally the ISO/OGC building blocks are somewhat aligned with the STAC extensions
  - STAC extensions as specific encodings for ISO/OGC building blocks?
CEOS-ARD STAC Extension

- Simplify (may not include all optional requirements)
- Create “profiles” for Optical and Radar
- Extend to cater for (1) AR, NLSR and (2) ORB, GLSC
- Update naming scheme
- Create JSON Schema
- Create examples

<table>
<thead>
<tr>
<th>Field Name</th>
<th>Data Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ceosard:type</td>
<td>string</td>
<td>REQUIRED. The CEOS-ARD (sensor) type implemented, one of optical or radar.</td>
</tr>
<tr>
<td>ceosard:specification</td>
<td>string</td>
<td>REQUIRED. The CEOS-ARD product family specification implemented.</td>
</tr>
<tr>
<td>ceosard:specification_version</td>
<td>string</td>
<td>REQUIRED. The CEOS-ARD product family specification version implemented.</td>
</tr>
</tbody>
</table>

The following combinations of values are supported for the fields above:

<table>
<thead>
<tr>
<th>PFS</th>
<th>ceosard:type</th>
<th>ceosard:specification</th>
<th>ceosard:specification_version</th>
<th>STAC Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surface Reflectance</td>
<td>optical</td>
<td>SR</td>
<td>5.0 / 5.0.1</td>
<td>Proposal</td>
</tr>
<tr>
<td>Surface Temperature</td>
<td>optical</td>
<td>ST</td>
<td>5.0</td>
<td>Proposal</td>
</tr>
<tr>
<td>Aquatic Reflectance</td>
<td>optical</td>
<td>AR</td>
<td>1.0</td>
<td>Proposal</td>
</tr>
<tr>
<td>Nighttime Lights Surface Radiance</td>
<td>optical</td>
<td>NLSR</td>
<td>1.0</td>
<td>Proposal</td>
</tr>
</tbody>
</table>
Optical

- Draft is available
- Waiting for a couple of clarifications
- May need updates if Optical PFS get merged
- Wish for a review by CEOS
- Example dataset will be created
Radar

- planned for 2024
- needs a lot of discussions for new STAC extensions (~ 30 fields)
- Help wanted - I have no clue about SAR!
Building Blocks / Profiles

- Similar to STAC extensions
  => work on small groups of related information
- Seems to be foreseen in ISO/OGC (see UML diagram)
- Potentially helpful for CEOS-ARD
Q&A

Related links:

- **STAC CEOS-ARD Extension**
  - Old STAC CARD4L Extension
- CEOS-ARD
- Open issues for CEOS-ARD
- Missing fields in Sentinel-2 L2A generation in stactools

Get in touch: matthias@mohr.ws