

# Improving Consistency of Data Quality Flags in CMR Metadata

July 24, 2016 ReAnalysis

While going through the data again I discovered that I had made an error in the original analysis that involved mixing flags and explanations. I apologize for the misunderstanding this may have caused. I am happy to say that the flag situation is much better than originally inferred. This Table shows the number of occurrences of each flag value by flag type. The number of different flag values is much smaller, and they are generally short phrases, as we would expect.

| Flag                   | Being Investigated | Failed | Inferred Passed | Not Investigated | Passed | Suspect | TBD | Grand Total |
|------------------------|--------------------|--------|-----------------|------------------|--------|---------|-----|-------------|
| AutomaticQualityFlag   |                    | 26     |                 | 6                | 3054   | 42      | 5   | 3133        |
| OperationalQualityFlag |                    |        | 60              | 179              | 258    | 15      |     | 512         |
| ScienceQualityFlag     | 10                 |        | 329             | 575              | 49     | 15      |     | 978         |

## Flag Explanations

These Tables show common values for quality flag explanations. Some inconsistencies remain to be ironed out, but inconsistencies in the explanations are less critical than those in the flags.

### Automatic Quality Flag Explanation

|   |        |
|---|--------|
| parameter is produced correctly   | 52.55% |
| Based on percentage of product that is good. Suspect used where true quality is not known.  | 9.90%  |
| No automatic quality assessment is performed in the PGE   | 9.76%  |
| DummyValue  | 4.27%  |
| Automatic quality determination software not yet implemented  | 3.09%  |
| Process Terminated Normally - Check Science Quality Flag for Science Team quality assessment  | 2.74%  |
| Passed indicates parameter passed for specific automatic test; Suspect, QA not run; Failed, parameter failed specific automatic test. | 2.12%  |
| Validated   | 1.95%  |
| QA flag explanation   | 1.36%  |
| All data passed during checkout   | 1.33%  |
| No automatic quality assessment is performed in the PGE.  | 1.00%  |
| No automatic quality assessment done in the PGE.  | 0.88%  |
| No automatic quality assessment done in the PGE   | 0.53%  |

### Operational Quality Flag Explanation

|  |        |
|--|--------|
| Passed   | 34.38% |
| Q/A process has not yet been run   | 17.58% |
| Passed,parameter passed the specified operational test. Inferred Pass,parameter terminated with warnings. Failed parameter terminated with fatal errors.                     | 14.65% |
| Not Investigated   | 12.89% |
| This granule passed operational tests that were administered by the OMI SIPS. QA metadata was extracted and the file was successfully read using standard HDF-EOS utilities. | 4.69%  |
| currently not used   | 3.91%  |
| Data believed to be good, but there may be isolated exceptions   | 3.13%  |
| Process Terminated Normally  | 2.34%  |
| no error detected  | 2.34%  |

|  |       |
|--|-------|
| Process Terminated Normally - Check Science Quality Statement  | 1.17% |
| Operational quality not investigated   | 0.98% |
| set Passed as default, will decide later   | 0.78% |
| Process Terminated Normally - Check Science Quality Flag for Science Team quality assessment   | 0.59% |
| This granule passed operational tests that were administered by the OMI SIPS. QA metadata was extracted and the file was successfully read using standard HDF-EOS utilities. | 0.59% |

## Science Quality Flag Explanation

|   |        |
|---|--------|
| Passed,parameter passed the specified science test. Inferred Pass,parameter terminated with warnings for specified science test. Failed parameter terminated with fatal errors for specified science test.                                  | 11.05% |
| See <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=aqua">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=aqua</a> for the product Science Quality status.                                       | 11.05% |
| See <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=terra">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=terra</a> for the product Science Quality status.                                     | 9.43%  |
| Validated, see <a href="http://disc.gsfc.nasa.gov/Aura/MLS/">http://disc.gsfc.nasa.gov/Aura/MLS/</a> for quality document   | 8.54%  |
| See <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=aqua&amp;ver=C6">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=aqua&amp;ver=C6</a> for the product Science Quality status.                 | 3.83%  |
| See <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=terra&amp;ver=C6">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=terra&amp;ver=C6</a> for the product Science Quality status.               | 3.83%  |
| See <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=aqua">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=aqua</a> the product Science Quality status.   | 3.53%  |
| An updated science quality flag and explanation is put in the product .met file when a granule has been evaluated. The flag value in this file, Not Investigated, is an automatic default that is put into every granule during production. | 3.24%  |
| See <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=terra">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/qaFlagPage.cgi?sat=terra</a> the product Science Quality status.   | 2.65%  |
| <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MOD13C1&amp;ver=C5.2016-02-20">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MOD13C1&amp;ver=C5.2016-02-20</a> 02:11                   | 1.91%  |
| <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MOD13C2&amp;ver=C5.2016-02-05">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MOD13C2&amp;ver=C5.2016-02-05</a> 02:12                   | 1.91%  |
| <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MYD13C1&amp;ver=C5.2016-02-28">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MYD13C1&amp;ver=C5.2016-02-28</a> 02:10                   | 1.91%  |
| <a href="http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MYD13C2&amp;ver=C5.2016-02-17">http://landweb.nascom.nasa.gov/cgi-bin/QA_WWW/detailInfo.cgi?prod_id=MYD13C2&amp;ver=C5.2016-02-17</a> 02:13                   | 1.91%  |