

Working with satellite swath imagery

1. Brief overview of satellite data levels
2. Understanding quality-flag information
3. Validation of satellite data with ground truth data

Brief Overview of Satellite Data Levels

- **Level 0: Uncalibrated science data** (engineering units) **in a raw format.**
- **Level-1A: Uncalibrated science data in an archive format** (are Level 0 with ancillary information including radiometric and geometric calibration coefficients and georeferencing parameters appended)
- **Level-1B: Calibrated, geolocated science data** (instrument/radiometric calibrations applied)
- **Level-2: Derived geophysical science products** at the same resolution as the source Level-1 data. These variables can be ocean color, SST, etc., and are obtainable from JAXA, NASA, ESA, etc.
- **Level-3: Derived geophysical science products, temporally/spatially composited.** Level-3 data are downloadable from Marine Environmental Watch of NOWPAP (regional), JAXA (global), NASA (global), etc.
- **Level-4: model output or results from analyses of lower-level data** (e.g., Primary Productivity, CHL from YOC algorithm, etc.)

Brief Overview of Satellite Data Levels (L2: Level-2)

L2: Advantages

- Unmapped data at native satellite swath coordinate system (spatial resolution and geometries)
- Includes in a single file many geophysical parameters
- Satellite-to-in situ validation exercises are performed with L2 data products

L2: Disadvantages

- Unmapped images (geometrically distorted) and cannot be compared with other images
- **Data must be quality screened to remove low-quality data prior to use**
- Files with large data volume
- Require more technical expertise to work with

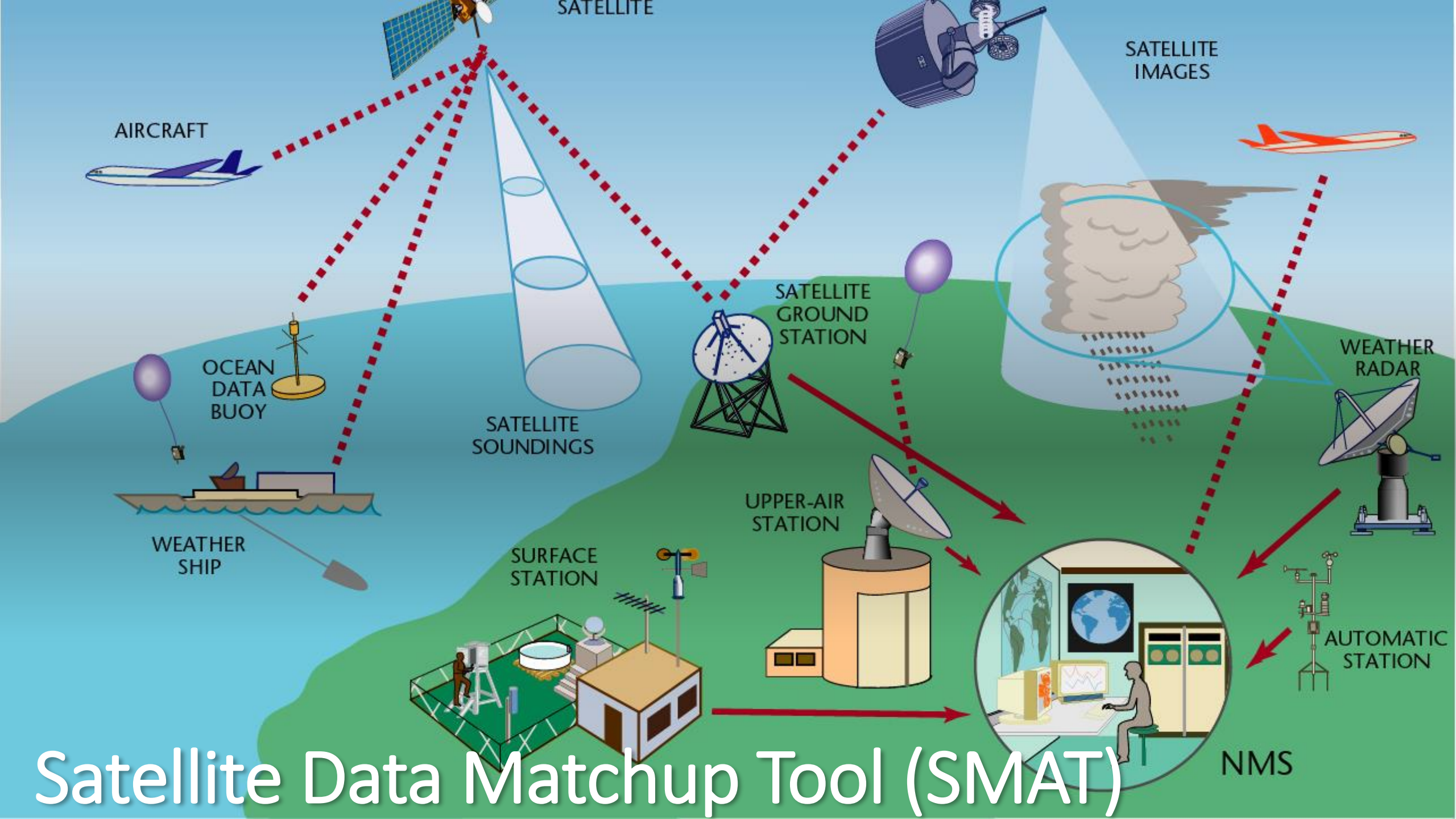
Understanding quality-flag information

NASA L2

| Use Level 2 Flags | | | |
|-------------------|---|----|---|
| Bit | Name | | |
| 00 | <input checked="" type="checkbox"/> ATMFAIL | 16 | <input type="checkbox"/> NAVWARN |
| 01 | <input checked="" type="checkbox"/> LAND | 17 | <input type="checkbox"/> ABSAER |
| 02 | <input type="checkbox"/> PRODWARN | 18 | <input type="checkbox"/> SPARE |
| 03 | <input type="checkbox"/> HIGLINT | 19 | <input type="checkbox"/> MAXAERITER |
| 04 | <input type="checkbox"/> HILT | 20 | <input type="checkbox"/> MODGLINT |
| 05 | <input type="checkbox"/> HISATZEN | 21 | <input type="checkbox"/> CHLWARN |
| 06 | <input type="checkbox"/> COASTZ | 22 | <input type="checkbox"/> ATMWARN |
| 07 | <input type="checkbox"/> SPARE | 23 | <input type="checkbox"/> SPARE |
| 08 | <input type="checkbox"/> STRAYLIGHT | 24 | <input type="checkbox"/> SEAICE |
| 09 | <input checked="" type="checkbox"/> CLDICE | 25 | <input checked="" type="checkbox"/> NAVFAIL |
| 10 | <input type="checkbox"/> COCCOLITH | 26 | <input type="checkbox"/> FILTER |
| 11 | <input type="checkbox"/> TURBIDW | 27 | <input type="checkbox"/> SPARE |
| 12 | <input type="checkbox"/> HISOLZEN | 28 | <input type="checkbox"/> BOWTIEDEL |
| 13 | <input type="checkbox"/> SPARE | 29 | <input type="checkbox"/> HIPOL |
| 14 | <input type="checkbox"/> LOWLW | 30 | <input type="checkbox"/> PRODFAIL |
| 15 | <input checked="" type="checkbox"/> CHLFAIL | 31 | <input type="checkbox"/> SPARE |

JAXA L2 SGLI

| Use Level 2 Flags | | | |
|-------------------|---|--|--|
| Bit | Name | | |
| 00 | <input type="checkbox"/> DATAMISS | | |
| 01 | <input checked="" type="checkbox"/> LAND | | |
| 02 | <input checked="" type="checkbox"/> ATMFAIL | | |
| 03 | <input checked="" type="checkbox"/> CLDICE | | |
| 04 | <input type="checkbox"/> CLDAFFCTD | | |
| 05 | <input type="checkbox"/> STRAYLIGHT | | |
| 06 | <input type="checkbox"/> HIGLINT | | |
| 07 | <input type="checkbox"/> MODGLINT | | |
| 08 | <input type="checkbox"/> HISOLZ | | |
| 09 | <input type="checkbox"/> HITAU | | |
| 10 | <input type="checkbox"/> NEGNLW | | |
| 11 | <input type="checkbox"/> TURBIDW | | |
| 12 | <input type="checkbox"/> SHALLOW | | |
| 13 | <input type="checkbox"/> ITERFAILCDOM | | |
| 14 | <input type="checkbox"/> CHLWARN | | |
| 15 | <input type="checkbox"/> SPARE | | |



Satellite Data Matchup Tool (SMAT)

SMAT: Satellite Data Matchup Tool

Online Matchup Tool

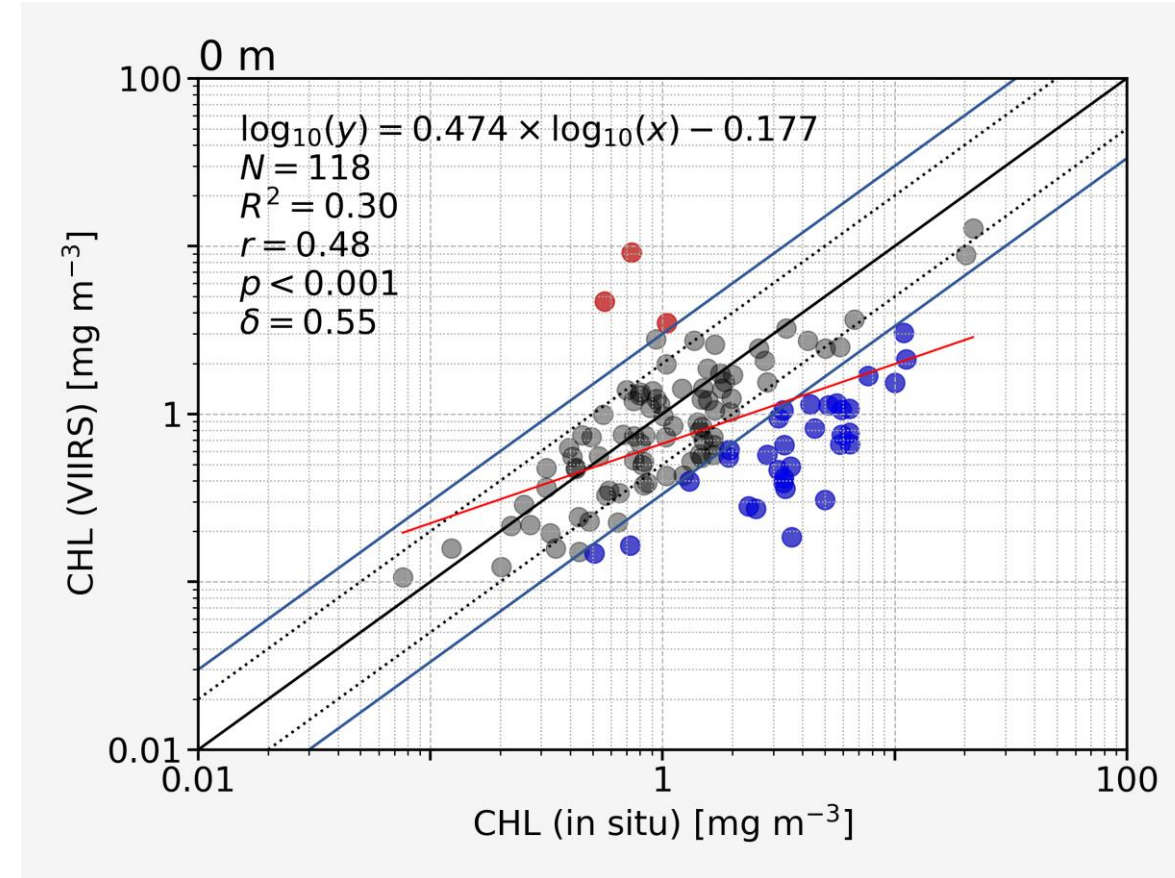
(<https://ocean.nowpap3.go.jp/smat/>)

- **Purpose**

- Matchup of satellite and in-situ observations

- **Composed of two parts**

1. Selection Criteria
2. Validation Criteria



SMAT: (1) Selection Criteria

Selection Criteria

This is a prototype version.

Instrument

modisa ▼ vs. in situ

Products

- ☒ Ocean Color(OC)
- ☐ Inherent Optical Properties(IOP)
- ☐ Sea Surface Temperature(SST)
- ☐ Remote Sensing Reflectance(Rrs)

Products details

- ☐ Check/Uncheck All
- ☐ aot_869 ☐ angstrom ☐ Rrs_412 ☐ Rrs_443
- ☐ Rrs_488 ☐ Rrs_531 ☐ Rrs_547 ☐ Rrs_645
- ☐ Rrs_667 ☐ Rrs_678 ☐ chlor_a ☐ chl_ocx
- ☐ Kd_490 ☐ pic ☐ poc ☐ ipar
- ☐ nflh ☐ par

List of in-situ data points

List of points: No file chosen

Contact Information

Name:

Email:

1. Instrument

(list of supported satellite)



2. Data Type

(OC, IOP, Rrs, SST)



2.1 Products

(list of products per data type)



Check all/Select a few

SMAT: (1) Selection Criteria

Selection Criteria

This is a prototype version.

Instrument

modisa ▼ vs. in situ

Products

- ☒ Ocean Color(OC)
- ☐ Inherent Optical Properties(IOP)
- ☐ Sea Surface Temperature(SST)
- ☐ Remote Sensing Reflectance(Rrs)

Products details

- ☐ Check/Uncheck All
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- ☐ Rrs_667 ☐ Rrs_678 ☐ chlor_a ☐ chl_ocx
- ☐ Kd_490 ☐ pic ☐ poc ☐ ipar
- ☐ nflh ☐ par

List of in-situ data points

List of points: No file chosen

Contact Information

Name:

Email:

In-situ data

(upload a .csv file with a list of field observation points)

Contact

(notifications are sent to provided email with link of matchup data download)

SMAT: (2) Validation Criteria

Validation Criteria

Specify the values

Pixel Window Size

Pixels

Min Valid Pixels

%

Max Time Difference

hours

SST Quality Level

Use Level 2 Flags

| Bit | Name |
|-----|---|
| 00 | <input checked="" type="checkbox"/> ATMFAIL |
| 01 | <input checked="" type="checkbox"/> LAND |
| 02 | <input type="checkbox"/> PRODWARN |
| 03 | <input type="checkbox"/> HIGLINT |
| 04 | <input type="checkbox"/> HILT |
| 05 | <input type="checkbox"/> HISATZEN |
| 06 | <input type="checkbox"/> COASTZ |
| 07 | <input type="checkbox"/> SPARE |
| 08 | <input type="checkbox"/> STRAYLIGHT |
| 09 | <input checked="" type="checkbox"/> CLDICE |
| 10 | <input type="checkbox"/> COCCOLITH |
| 11 | <input type="checkbox"/> TURBIDW |
| 12 | <input type="checkbox"/> HISOLZEN |
| 13 | <input type="checkbox"/> SPARE |
| 14 | <input type="checkbox"/> LOWLW |
| 15 | <input checked="" type="checkbox"/> CHLFAIL |
| 16 | <input type="checkbox"/> NAVWARN |
| 17 | <input type="checkbox"/> ABSAER |
| 18 | <input type="checkbox"/> SPARE |
| 19 | <input type="checkbox"/> MAXAERITER |
| 20 | <input type="checkbox"/> MODGLINT |
| 21 | <input type="checkbox"/> CHLWARN |
| 22 | <input type="checkbox"/> ATMWARN |
| 23 | <input type="checkbox"/> SPARE |
| 24 | <input type="checkbox"/> SEAICE |
| 25 | <input checked="" type="checkbox"/> NAVFAIL |
| 26 | <input type="checkbox"/> FILTER |
| 27 | <input type="checkbox"/> SPARE |
| 28 | <input type="checkbox"/> BOWTIEDEL |
| 29 | <input type="checkbox"/> HIPOL |
| 30 | <input type="checkbox"/> PRODFAIL |
| 31 | <input type="checkbox"/> SPARE |

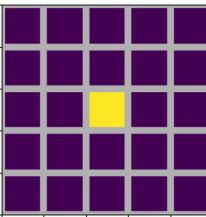
Click "Apply" button to run the system

No Data!!

Pixel Window Size

data search window

yellow → in-situ point centre



Min Valid Pixels

($5 \times 5 = 25$, 50% = 13)

Max Time Difference

(in-situ—satellite time difference)

SST Quality Level

(quality number 0: best, 4: worst)

SMAT: (2) Validation Criteria

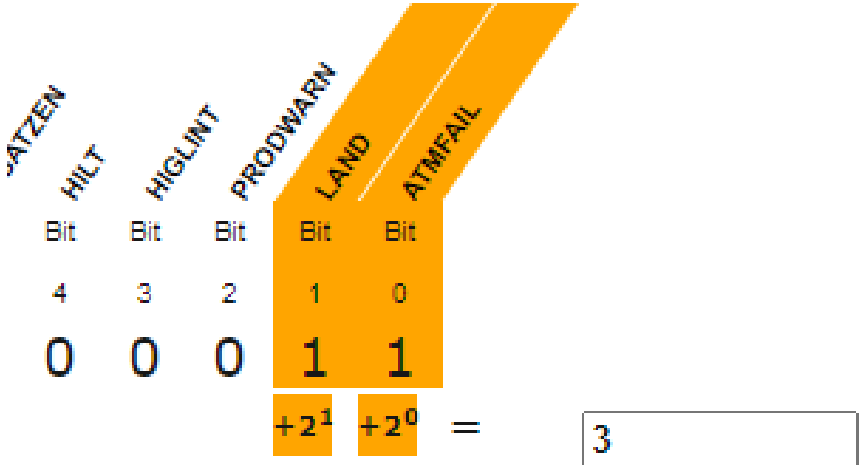
Validation Criteria

| Specify the values | |
|---------------------|---------------------------------------|
| Pixel Window Size | <input type="text" value="5"/> Pixels |
| Min Valid Pixels | <input type="text" value="50"/> % |
| Max Time Difference | <input type="text" value="3"/> hours |
| SST Quality Level | <input type="text" value="1"/> |

| Use Level 2 Flags | | |
|-------------------|---|--|
| Bit | Name | |
| 00 | <input checked="" type="checkbox"/> ATMFAIL | 16 <input type="checkbox"/> NAVWARN |
| 01 | <input checked="" type="checkbox"/> LAND | 17 <input type="checkbox"/> ABSAER |
| 02 | <input type="checkbox"/> PRODWARN | 18 <input type="checkbox"/> SPARE |
| 03 | <input type="checkbox"/> HIGLINT | 19 <input type="checkbox"/> MAXAERITER |
| 04 | <input type="checkbox"/> HILT | 20 <input type="checkbox"/> MODGLINT |
| 05 | <input type="checkbox"/> HISATZEN | 21 <input type="checkbox"/> CHLWARN |
| 06 | <input type="checkbox"/> COASTZ | 22 <input type="checkbox"/> ATMWARN |
| 07 | <input type="checkbox"/> SPARE | 23 <input type="checkbox"/> SPARE |
| 08 | <input type="checkbox"/> STRAYLIGHT | 24 <input type="checkbox"/> SEAICE |
| 09 | <input checked="" type="checkbox"/> CLDICE | 25 <input checked="" type="checkbox"/> NAVFAIL |
| 10 | <input type="checkbox"/> COCCOLITH | 26 <input type="checkbox"/> FILTER |
| 11 | <input type="checkbox"/> TURBIDW | 27 <input type="checkbox"/> SPARE |
| 12 | <input type="checkbox"/> HISOLZEN | 28 <input type="checkbox"/> BOWTIEDEL |
| 13 | <input type="checkbox"/> SPARE | 29 <input type="checkbox"/> HIPOL |
| 14 | <input type="checkbox"/> LOWLW | 30 <input type="checkbox"/> PRODFAIL |
| 15 | <input checked="" type="checkbox"/> CHLFAIL | 31 <input type="checkbox"/> SPARE |

Level-2 Flags

16 or 32bits: Data Type dependent



Click "Apply" button to run the system

Submit

No Data!!

<https://code.earthengine.google.com/84446da594ddeb41fab3e50da212311>

SMAT: (2) Validation Criteria

Validation Criteria

| Specify the values | Use Level 2 Flags | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|-----|------|----|---|----|--|----|-----------------------------------|----|----------------------------------|----|-------------------------------|----|-----------------------------------|----|---------------------------------|----|--------------------------------|----|-------------------------------------|----|--|----|------------------------------------|----|----------------------------------|----|-----------------------------------|----|--------------------------------|----|--------------------------------|----|---|----|----------------------------------|----|---------------------------------|----|--------------------------------|----|-------------------------------------|----|-----------------------------------|----|----------------------------------|----|----------------------------------|----|--------------------------------|----|---------------------------------|----|---|----|---------------------------------|----|--------------------------------|----|------------------------------------|----|--------------------------------|----|-----------------------------------|----|--------------------------------|
| Pixel Window Size <input type="text" value="5"/> Pixels | <table><thead><tr><th>Bit</th><th>Name</th></tr></thead><tbody><tr><td>00</td><td><input checked="" type="checkbox"/> ATMFAIL</td></tr><tr><td>01</td><td><input checked="" type="checkbox"/> LAND</td></tr><tr><td>02</td><td><input type="checkbox"/> PRODWARN</td></tr><tr><td>03</td><td><input type="checkbox"/> HIGLINT</td></tr><tr><td>04</td><td><input type="checkbox"/> HILT</td></tr><tr><td>05</td><td><input type="checkbox"/> HISATZEN</td></tr><tr><td>06</td><td><input type="checkbox"/> COASTZ</td></tr><tr><td>07</td><td><input type="checkbox"/> SPARE</td></tr><tr><td>08</td><td><input type="checkbox"/> STRAYLIGHT</td></tr><tr><td>09</td><td><input checked="" type="checkbox"/> CLDICE</td></tr><tr><td>10</td><td><input type="checkbox"/> COCCOLITH</td></tr><tr><td>11</td><td><input type="checkbox"/> TURBIDW</td></tr><tr><td>12</td><td><input type="checkbox"/> HISOLZEN</td></tr><tr><td>13</td><td><input type="checkbox"/> SPARE</td></tr><tr><td>14</td><td><input type="checkbox"/> LOWLW</td></tr><tr><td>15</td><td><input checked="" type="checkbox"/> CHLFAIL</td></tr><tr><td>16</td><td><input type="checkbox"/> NAVWARN</td></tr><tr><td>17</td><td><input type="checkbox"/> ABSAER</td></tr><tr><td>18</td><td><input type="checkbox"/> SPARE</td></tr><tr><td>19</td><td><input type="checkbox"/> MAXAERITER</td></tr><tr><td>20</td><td><input type="checkbox"/> MODGLINT</td></tr><tr><td>21</td><td><input type="checkbox"/> CHLWARN</td></tr><tr><td>22</td><td><input type="checkbox"/> ATMWARN</td></tr><tr><td>23</td><td><input type="checkbox"/> SPARE</td></tr><tr><td>24</td><td><input type="checkbox"/> SEAICE</td></tr><tr><td>25</td><td><input checked="" type="checkbox"/> NAVFAIL</td></tr><tr><td>26</td><td><input type="checkbox"/> FILTER</td></tr><tr><td>27</td><td><input type="checkbox"/> SPARE</td></tr><tr><td>28</td><td><input type="checkbox"/> BOWTIEDEL</td></tr><tr><td>29</td><td><input type="checkbox"/> HIPOL</td></tr><tr><td>30</td><td><input type="checkbox"/> PRODFAIL</td></tr><tr><td>31</td><td><input type="checkbox"/> SPARE</td></tr></tbody></table> | Bit | Name | 00 | <input checked="" type="checkbox"/> ATMFAIL | 01 | <input checked="" type="checkbox"/> LAND | 02 | <input type="checkbox"/> PRODWARN | 03 | <input type="checkbox"/> HIGLINT | 04 | <input type="checkbox"/> HILT | 05 | <input type="checkbox"/> HISATZEN | 06 | <input type="checkbox"/> COASTZ | 07 | <input type="checkbox"/> SPARE | 08 | <input type="checkbox"/> STRAYLIGHT | 09 | <input checked="" type="checkbox"/> CLDICE | 10 | <input type="checkbox"/> COCCOLITH | 11 | <input type="checkbox"/> TURBIDW | 12 | <input type="checkbox"/> HISOLZEN | 13 | <input type="checkbox"/> SPARE | 14 | <input type="checkbox"/> LOWLW | 15 | <input checked="" type="checkbox"/> CHLFAIL | 16 | <input type="checkbox"/> NAVWARN | 17 | <input type="checkbox"/> ABSAER | 18 | <input type="checkbox"/> SPARE | 19 | <input type="checkbox"/> MAXAERITER | 20 | <input type="checkbox"/> MODGLINT | 21 | <input type="checkbox"/> CHLWARN | 22 | <input type="checkbox"/> ATMWARN | 23 | <input type="checkbox"/> SPARE | 24 | <input type="checkbox"/> SEAICE | 25 | <input checked="" type="checkbox"/> NAVFAIL | 26 | <input type="checkbox"/> FILTER | 27 | <input type="checkbox"/> SPARE | 28 | <input type="checkbox"/> BOWTIEDEL | 29 | <input type="checkbox"/> HIPOL | 30 | <input type="checkbox"/> PRODFAIL | 31 | <input type="checkbox"/> SPARE |
| Bit | Name | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 00 | <input checked="" type="checkbox"/> ATMFAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 01 | <input checked="" type="checkbox"/> LAND | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 02 | <input type="checkbox"/> PRODWARN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 03 | <input type="checkbox"/> HIGLINT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 04 | <input type="checkbox"/> HILT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 05 | <input type="checkbox"/> HISATZEN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 06 | <input type="checkbox"/> COASTZ | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 07 | <input type="checkbox"/> SPARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 08 | <input type="checkbox"/> STRAYLIGHT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 09 | <input checked="" type="checkbox"/> CLDICE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | <input type="checkbox"/> COCCOLITH | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | <input type="checkbox"/> TURBIDW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 12 | <input type="checkbox"/> HISOLZEN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 13 | <input type="checkbox"/> SPARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 14 | <input type="checkbox"/> LOWLW | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 15 | <input checked="" type="checkbox"/> CHLFAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16 | <input type="checkbox"/> NAVWARN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17 | <input type="checkbox"/> ABSAER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 18 | <input type="checkbox"/> SPARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 19 | <input type="checkbox"/> MAXAERITER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 20 | <input type="checkbox"/> MODGLINT | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 21 | <input type="checkbox"/> CHLWARN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 22 | <input type="checkbox"/> ATMWARN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 23 | <input type="checkbox"/> SPARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 24 | <input type="checkbox"/> SEAICE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | <input checked="" type="checkbox"/> NAVFAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 26 | <input type="checkbox"/> FILTER | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 27 | <input type="checkbox"/> SPARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 28 | <input type="checkbox"/> BOWTIEDEL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 29 | <input type="checkbox"/> HIPOL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 30 | <input type="checkbox"/> PRODFAIL | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 31 | <input type="checkbox"/> SPARE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Min Valid Pixels <input type="text" value="50"/> % | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Max Time Difference <input type="text" value="3"/> hours | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SST Quality Level <input type="text" value="1"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Click "Apply" button to run the system

No Data!!



Submit

(Submit request for processing)

SMAT: Results

```
1 :BeginHeader
2 Using satellite data from MODIS/AQUA
3 Match-up generation datetime: 2021-12-01T14:32:06
4 Investigator: ermaure
5 Contact: maure@npec.or.jp
6 Missing: -999
7 Delimiter: comma
8 Header rows: 14
9 VALIDATION CRITERIA applied to this match-up
10 -Box size of satellite extract: 5 x 5 = 25 pixels
11 -Minimum percent valid satellite pixels: 25.0
12 -Maximum time difference between satellite and in situ: 3 h
13 -Level-2 flags considered for data screening: ATMFAIL+LAND+CLDICE+CHLFAIL+NAVFAIL
14 :EndHeader
15 cruise,Year,Month,Day,Hour,Minute,Second,Lat,Lon,id,etopo2,chl,Datetime,Filename,Variable [Units
16 bats173,2003,2,22,17,6,0,32.1844,-64.4933,462.0,3013.0,0.382,2003-02-22T17:06:00,A2003053173000.
```