

Near Real Time Active Fires and GAASP Level-2 Products Via Direct Broadcast Using the Community Satellite Processing Package

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Outline

- 1 NOAA JPSS M-band and I-band Active Fires
- 2 NOAA GAASP
- 3 Conclusion

NOAA JPSS M-band and I-band Active Fires

Actually two separate packages utilizing the VIIRS imager:

- The NESDIS Data Exploitation (NDE) operational version of the 750m "M-band" algorithm.
- The NESDIS/STAR version of the 375m "I-band" algorithm.
- The NOAA JPSS Active Fires Team is led by Ivan Csiszar at the NOAA NESDIS Center for Satellite Applications and Research (STAR).
- NOAA's VIIRS Active Fire product development has been done through collaboration between STAR, the University of Maryland and the NASA VIIRS Land Science Team.

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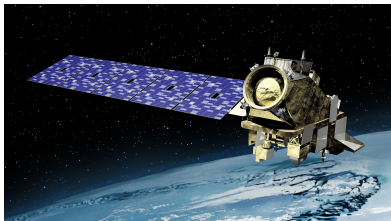
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CSPP VIIRS Active Fire Package

Overview...

- CSPP: Community Satellite Processing Package
- Provides single command-line interface to both M- and I-band AF packages
- Required ancillary (land sea mask) automatically generated and cached.
- Specification of inputs is flexible, works hard to construct valid input datasets for as many granules as possible.
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Installation and Usage...

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Outputs...

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and...

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AFIMG_j01_d20181006_t1911037_e1912264_b04575_c20181220232803741292_cspp_dev.nc  
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M-band text file output...

```

# Active Fires M-band EDR
#
# source: AFMOD_j01_d20181108_t2037507_e2039152_b05044_c20190304230936827623_cspp_dev.nc
# version: CSPP Active Fires version: cspp-active-fire-noaa_1.1.0
#
# column 1: latitude of fire pixel (degrees)
# column 2: longitude of fire pixel (degrees)
# column 3: M13 brightness temperature of fire pixel (K)
# column 4: Along-scan fire pixel resolution (km)
# column 5: Along-track fire pixel resolution (km)
# column 6: detection confidence (%)
# column 7: fire radiative power (MW)
#
# number of fire pixels: 16
#
35.47874451, -111.83826447, 332.68179321, 0.750, 0.750, 87, 25.65144157
35.47753906, -111.84749603, 306.72088623, 0.750, 0.750, 49, 7.22195292
35.48810959, -111.82084656, 320.78701782, 0.750, 0.750, 80, 15.28092289
35.49021530, -111.81923676, 307.22473145, 0.750, 0.750, 20, 6.78093529
35.89418793, -113.16993713, 303.47518921, 0.750, 0.750, 56, 5.57940626
...

```

CSPP VIIRS Active Fire Package

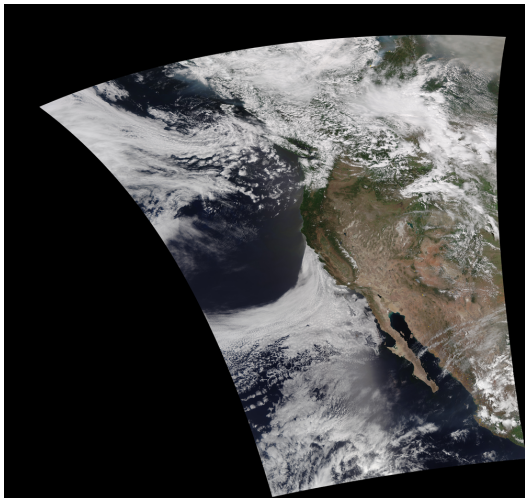
Outputs...

I-band text file output...

```
# Active Fires I-band EDR
#
# source: AFIMG_j01_d20181108_t2036267_e2037495_b05044_c20190304230904282103_cspp_dev.nc
# version: CSPP Active Fires version: cspp-active-fire-noaa_1.1.0
#
# column 1: latitude of fire pixel (degrees)
# column 2: longitude of fire pixel (degrees)
# column 3: I04 brightness temperature of fire pixel (K)
# column 4: Along-scan fire pixel resolution (km)
# column 5: Along-track fire pixel resolution (km)
# column 6: detection confidence ([7,8,9]->[lo,med,hi])
# column 7: fire radiative power (MW)
#
# number of fire pixels: 24
#
30.49592400, -109.63116455, 336.13516235, 0.375, 0.375, 8, 9.15165710
30.71900749, -109.05194855, 333.36169434, 0.375, 0.375, 7, 5.44204712
30.71839714, -109.05703735, 338.16854858, 0.375, 0.375, 8, 5.44204712
31.23553085, -108.98153687, 331.27493286, 0.375, 0.375, 8, 3.02541184
31.23493385, -108.98663330, 352.44110107, 0.375, 0.375, 8, 9.35638523
...
```

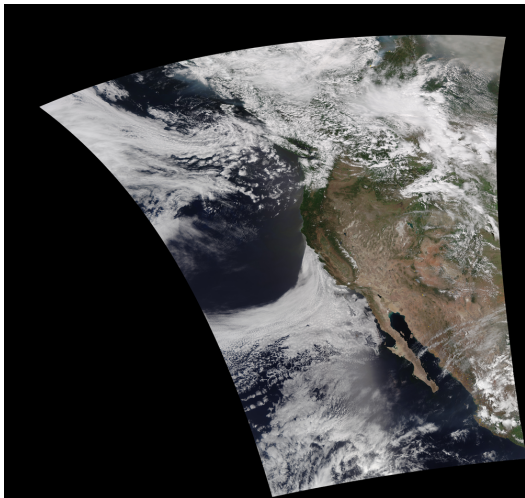
Visualizations

- Polar2Grid
- Uses same HDF5 inputs as Active Fires package.
- Kathleen Strabala, Thursday 11:30.



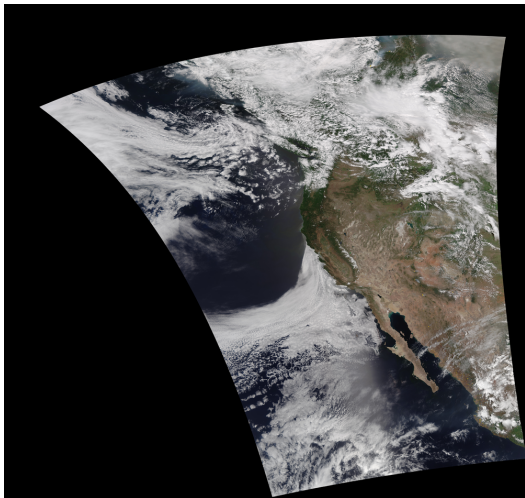
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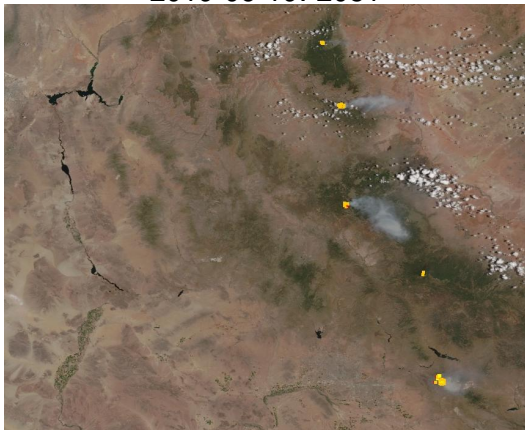
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2019-06-19: 2051



GCOM-W1 AMSR2 Algorithm Software Package (GAASP)

Overview...

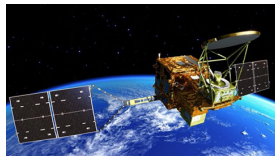
- GCOM-W1: Global Change Observation Mission - Water 1.
- AMSR2: Advanced Microwave Scanning Radiometer 2.
- The GCOM-W1 mission of JAXA is dedicated to sea surface monitoring and to contribute to observations related to global water and energy circulation.



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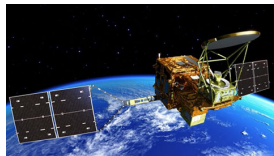
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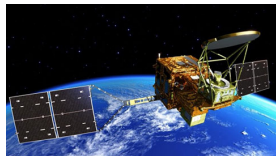
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Overview...

GAASP Modules...

- Preprocessor: BT bias corrections, other stuff
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- Precipitation
- Soil
- Snow
- Sea Ice
- Postprocessor: HDF5 to NetCDF

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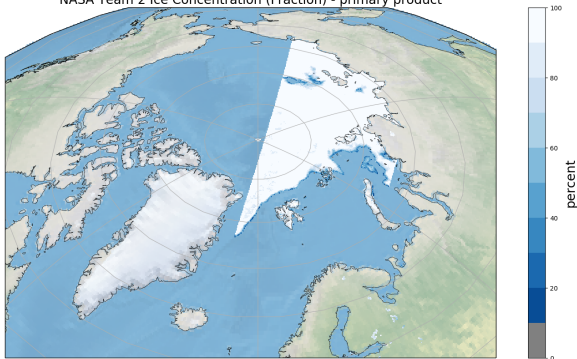
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Outputs...

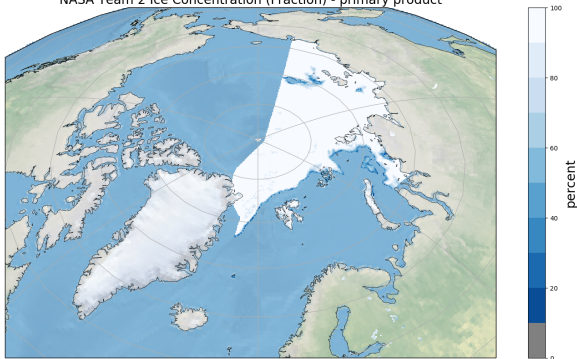
NASA Team 2 Ice Concentration (Fraction) - primary product



GCOM-W1 AMSR2 Algorithm Software Package (GAASP)

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percent

100

80

60

40

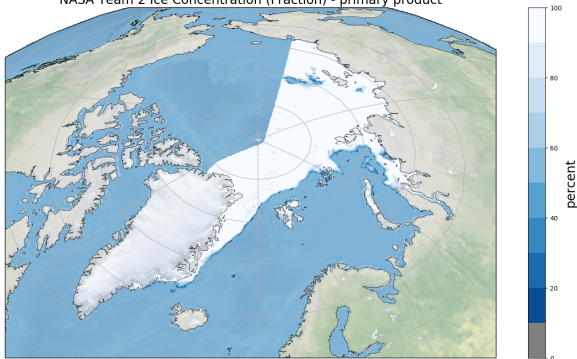
20

0

GCOM-W1 AMSR2 Algorithm Software Package (GAASP)

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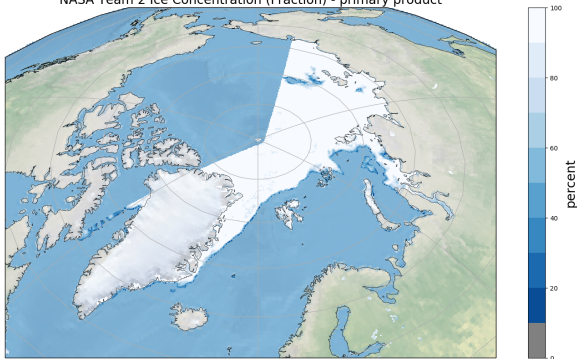
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Outputs...

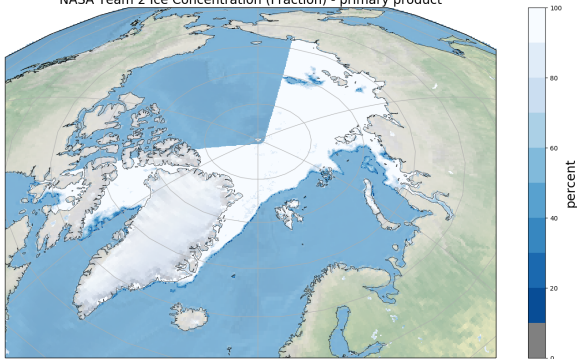
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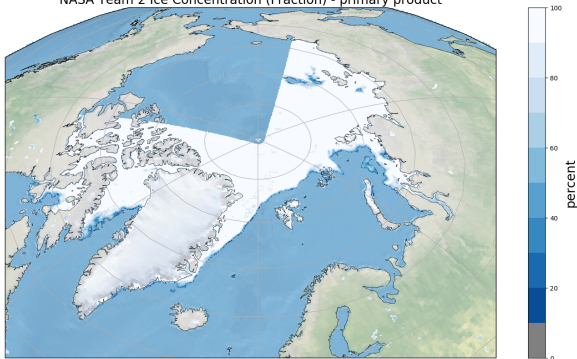
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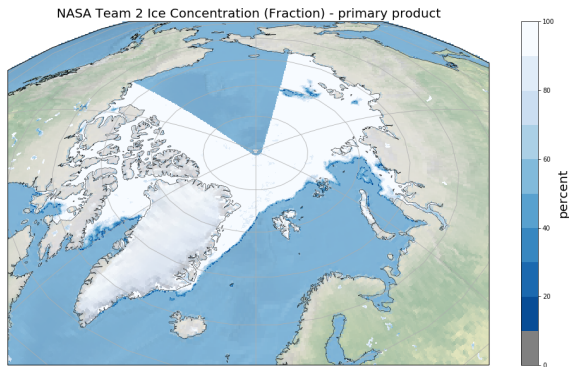
Outputs...

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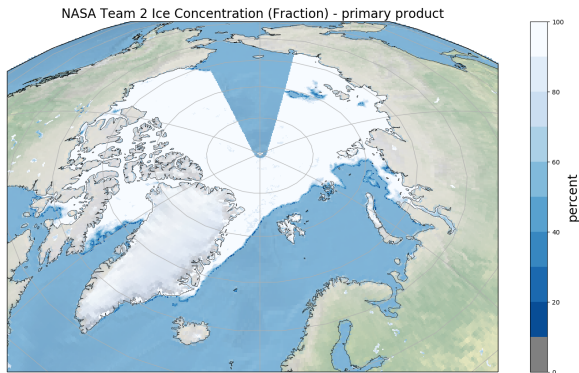
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Outputs...



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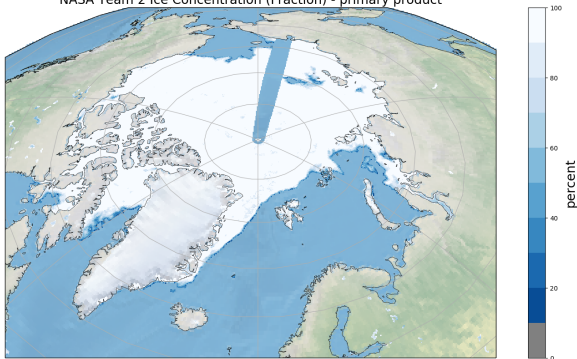
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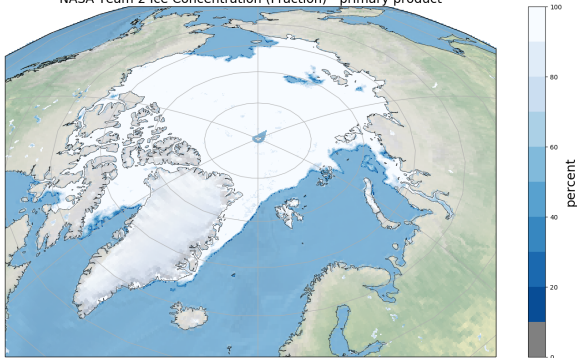
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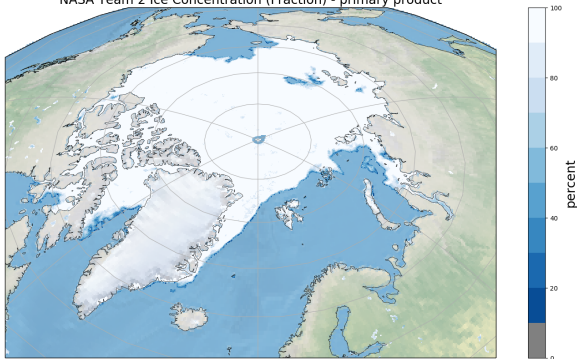
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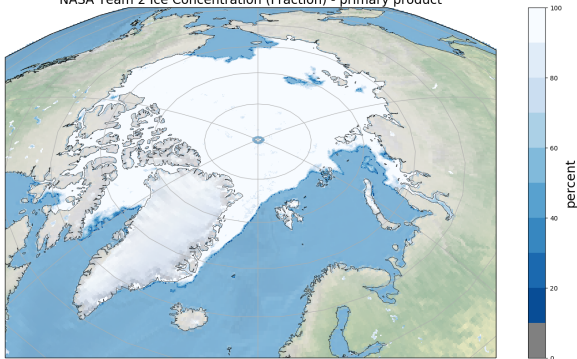
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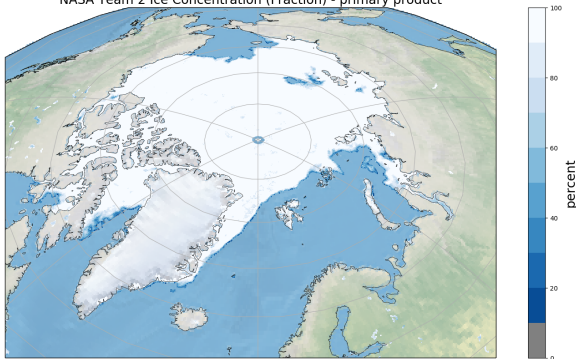
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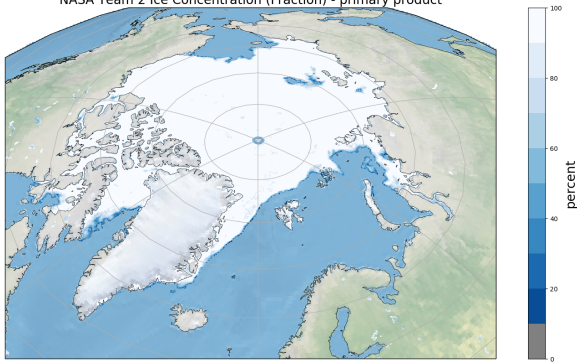
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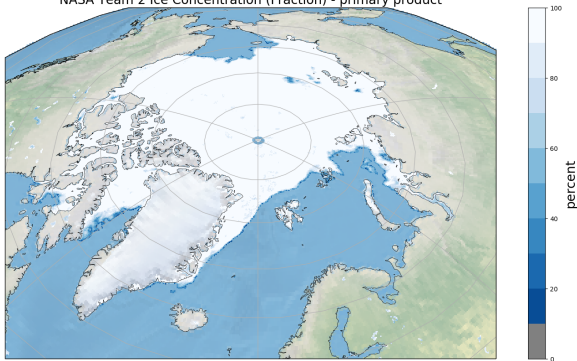
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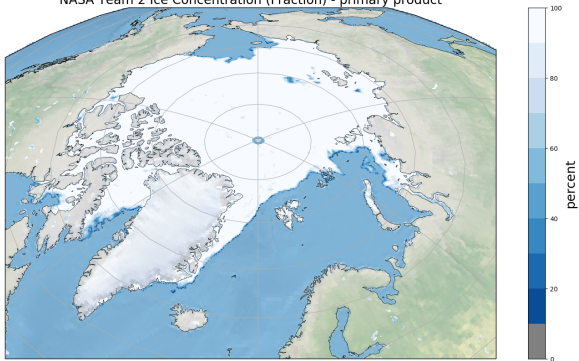
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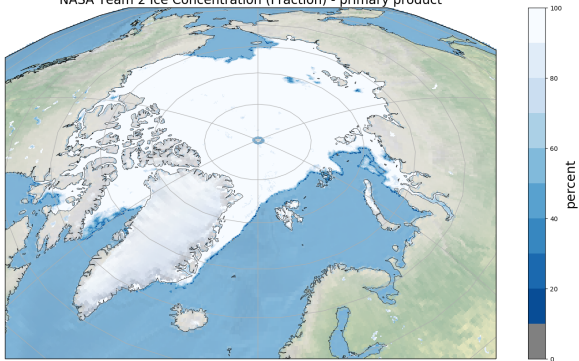
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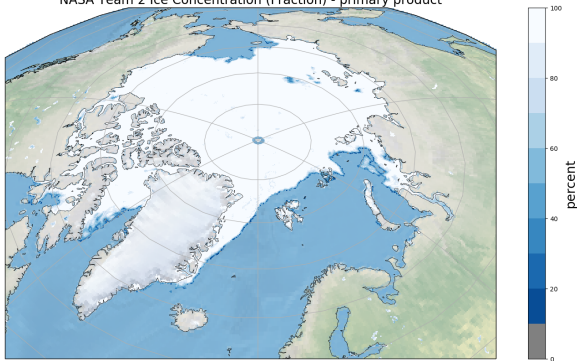
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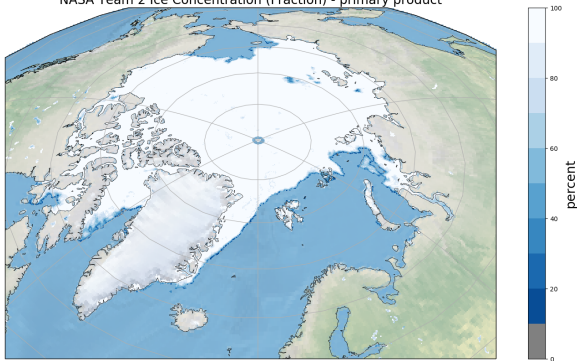
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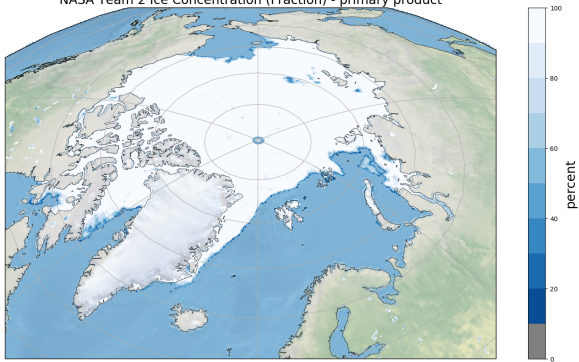
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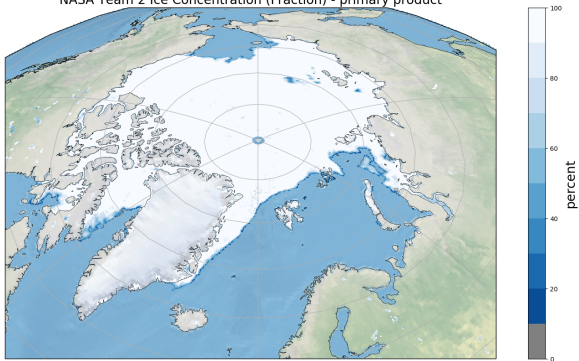
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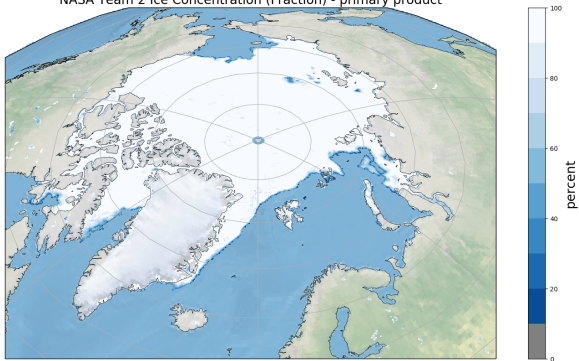
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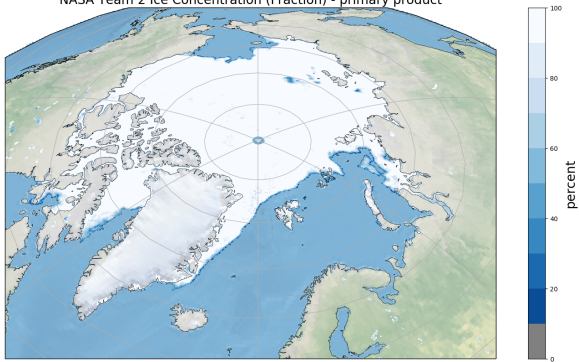
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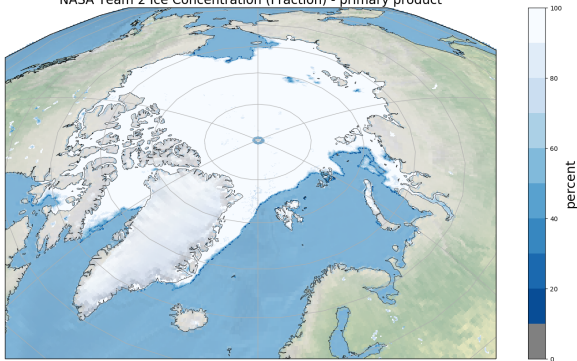
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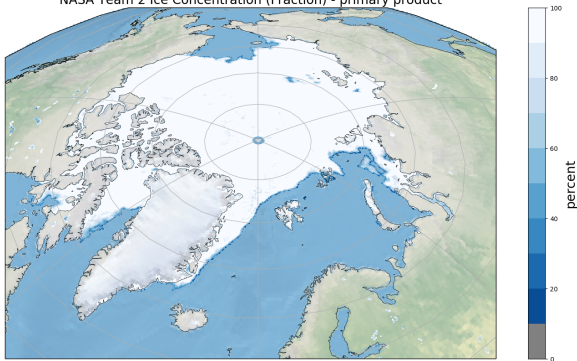
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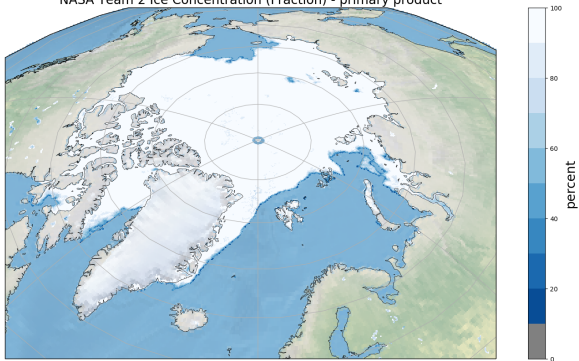
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Conclusion

CSPP NOAA Active Fires

- Released version 1.1, April 2019
- Added I-band support
- Added JPSS-1 / NOAA-20
- Rationalized text output for downstream applications

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- <http://cimss.ssec.wisc.edu/cspp/>
- email: geoff.cureton@ssec.wisc.edu
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