THE HIDDEN USERS OF CSPP

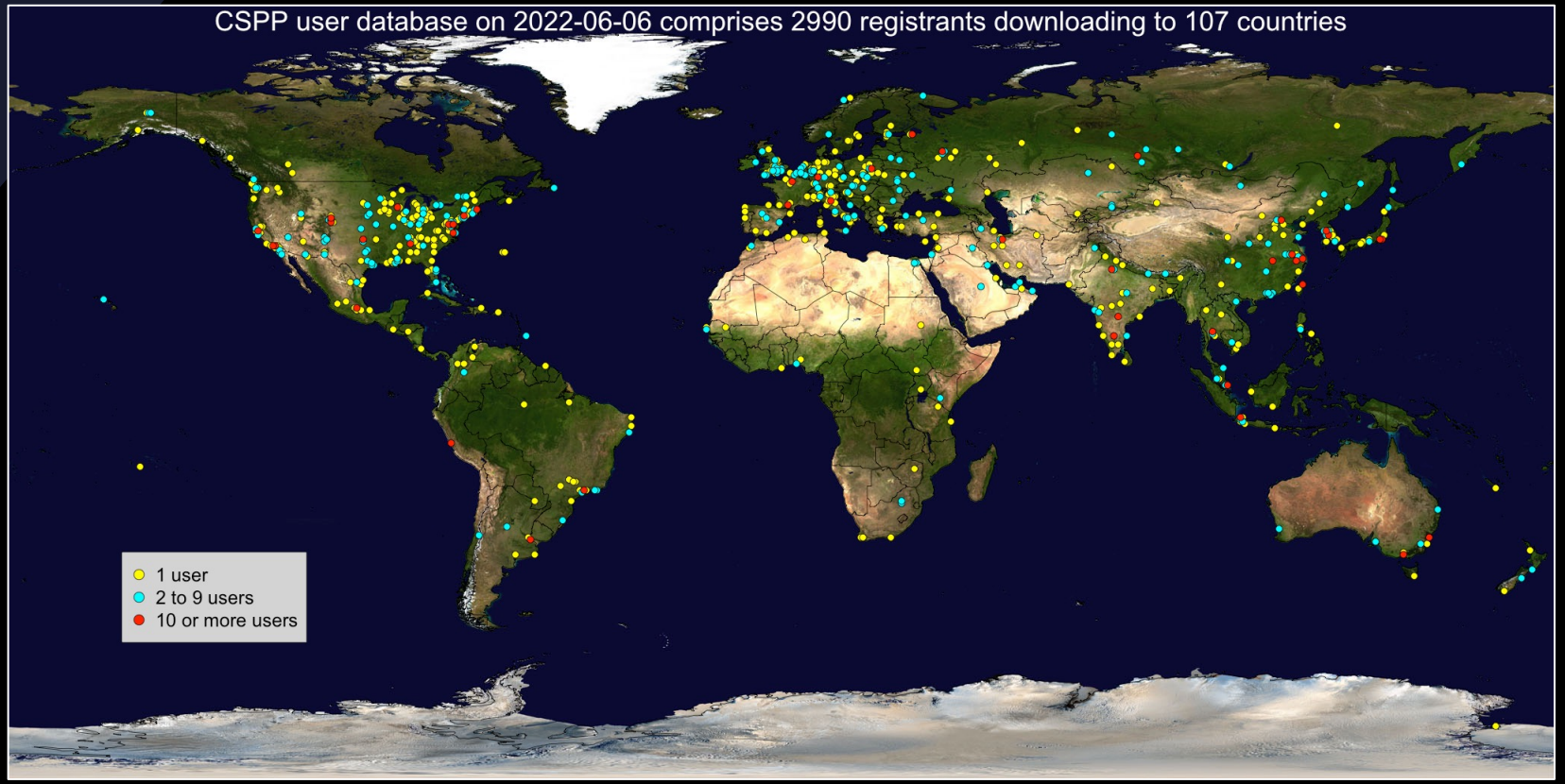
Kathleen Strabala

For the Community Satellite Processing Package (CSPP) LEO and Geo Teams

2022 CSPP Users' Group Meeting
23 June 2022

Global CSPP LEO Registrants

(Users who downloaded at least 1 of the CSPP packages)



Who are all of these users?

- Global community of users, but we have direct contact with very few of them.
  - *Who are they?*
  - *What portions of CSPP are they using?*
  - *What applications are supported?*

To help us answer these questions, I did a simple Google Scholar search on “Community Satellite Processing Package” since 2019.

The results follow.

Taiwan - 2020

- Liu, Chian-Yi, et al. "Comparison of cloud-top property retrievals from Advanced Himawari Imager, MODIS, CloudSat/CPR, CALIPSO/CALIOP, and radiosonde." *Journal of Geophysical Research: Atmospheres* 125.15 (2020): e2020JD032683.

The primary objective of this study was to assess the performance of cloud retrievals from AHI onboard Himawari-8 (Himawari-8/AHI) observation by using CSPP-GEO. Although similar studies had been conducted (e.g., Huo et al., 2020; Lai et al., 2019; Letu et al., 2019; Tan et al., 2019), the cloud properties have not been comprehensively evaluated with either active or passive instrument (e.g., CPR, CALIOP, or MODIS) in an unstable atmospheric condition.

“The findings show that the cloud-top altitude, cloud optical thickness, and cloud effective particle radius retrieved from AHI are consistent with passive Moderate Resolution Imaging Spectroradiometer (MODIS) data.”

AGU ADVANCING EARTH AND SPACE SCIENCE
Journal of Geophysical Research: Atmospheres
10.1029/2020JD032683

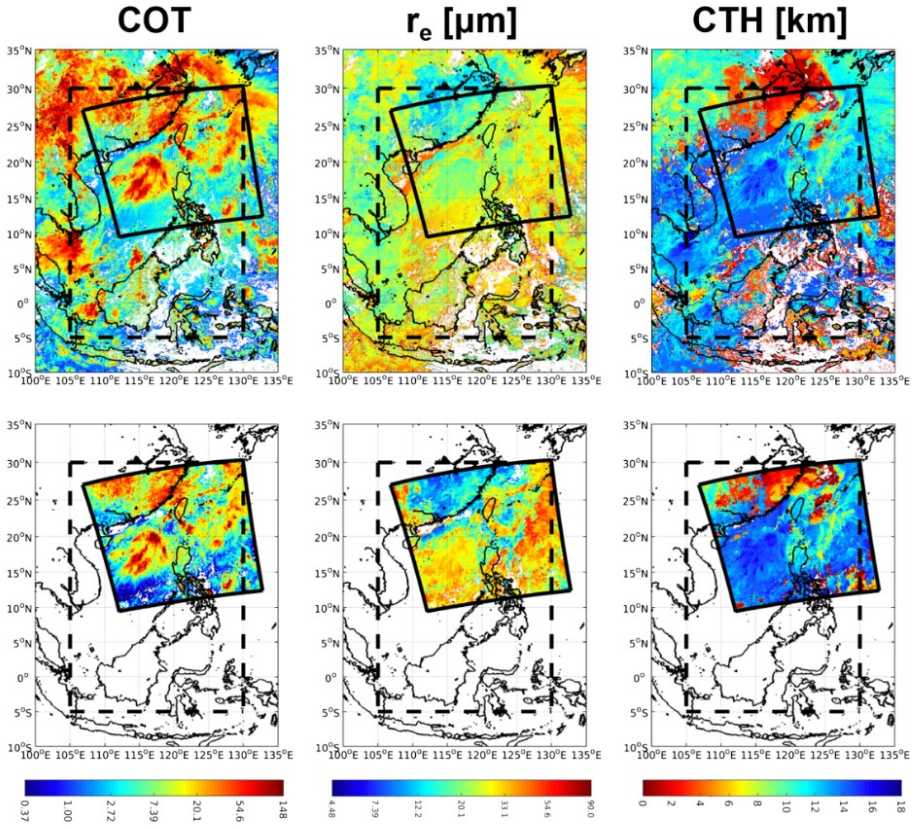
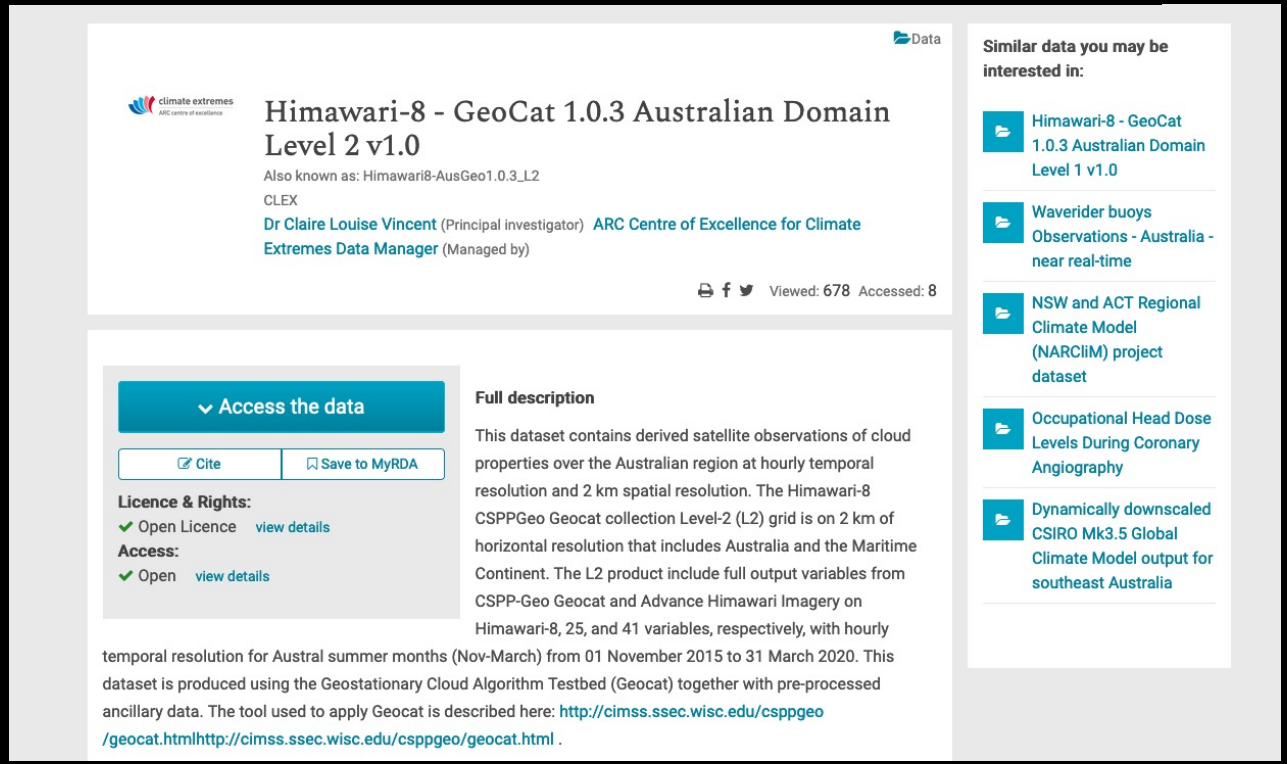


Figure 2. Comparison of Himawari-8 and operational Aqua/MODIS (MYD06) retrieved COT (left column), CDe (middle column), and CTH (right column) at 0520Z 22 May 2016. The panels in the top (bottom) row are the retrievals from AHI (MODIS) observation.

Australia - 2021

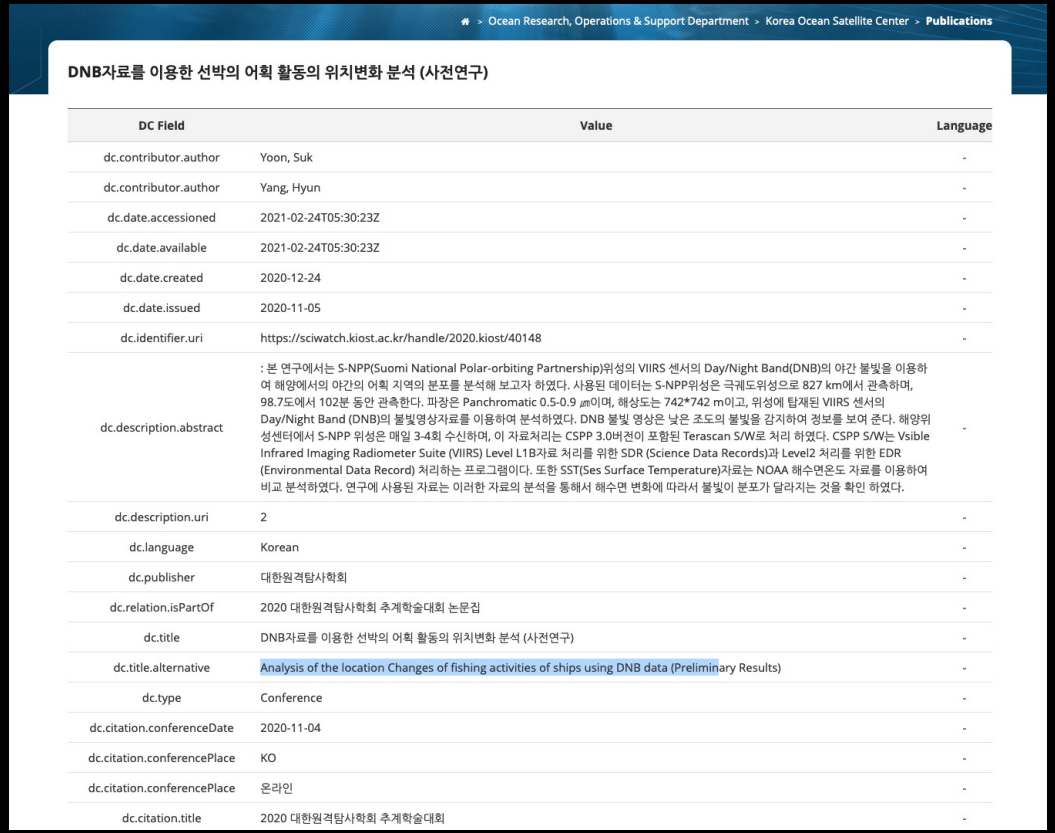
This dataset is a product of the Centre of Excellence for Climate Extremes (CLEX) Extreme Rainfall research project



https://researchdata.edu.au/himawari-8-geocat-2-v10/1670787

Korea 2020

- Analysis of the location Changes of fishing activities of ships using DNB data



Ocean Research, Operations & Support Department > Korea Ocean Satellite Center > **Publications**

DNB자료를 이용한 선박의 어획 활동의 위치변화 분석 (사전연구)

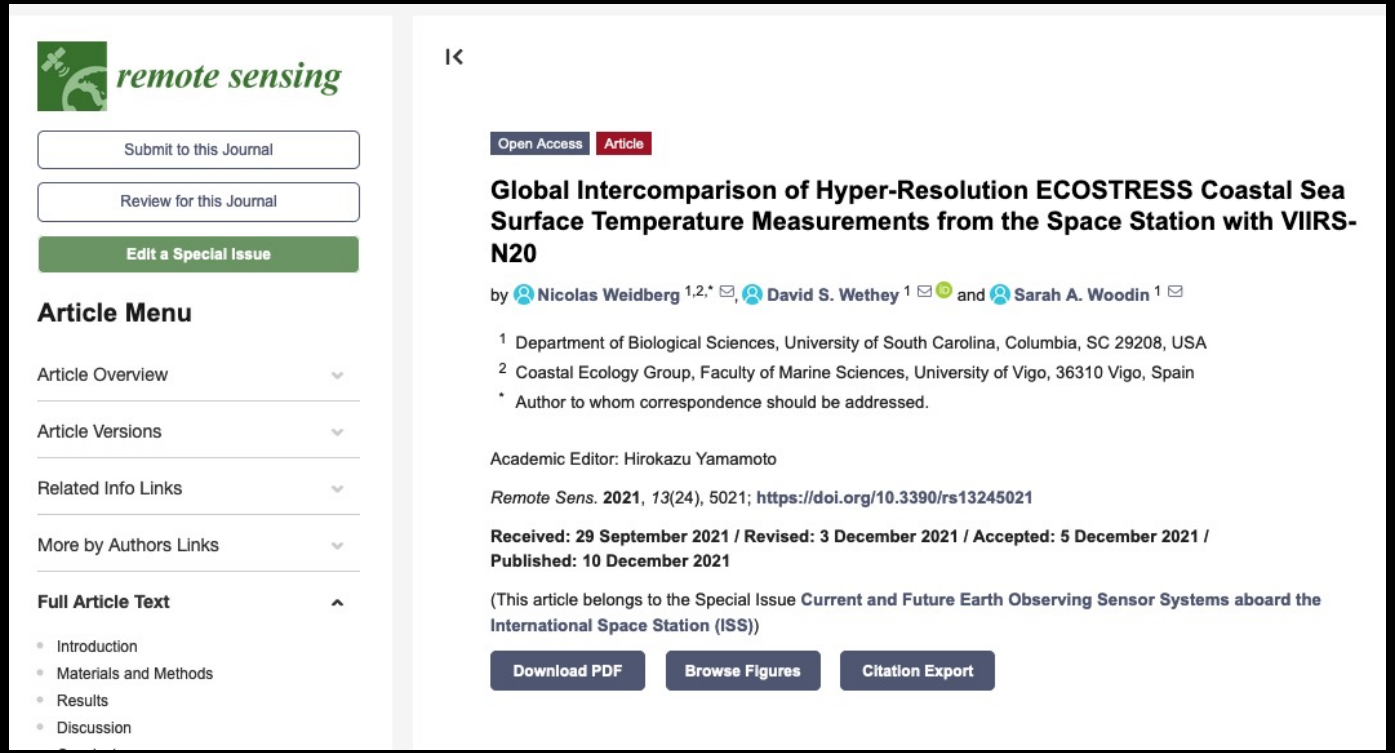
DC Field	Value	Language
dc.contributor.author	Yoon, Suk	-
dc.contributor.author	Yang, Hyun	-
dc.date.accessioned	2021-02-24T05:30:23Z	-
dc.date.available	2021-02-24T05:30:23Z	-
dc.date.created	2020-12-24	-
dc.date.issued	2020-11-05	-
dc.identifier.uri	https://sciwatch.kiost.ac.kr/handle/2020.kiost/40148	-
dc.description.abstract	: 본 연구에서는 S-NPP(Suomi National Polar-orbiting Partnership)위성의 VIIRS 센서의 Day/Night Band(DNB)의 야간 불빛을 이용하여 해양에서의 야간의 어획 지역의 분포를 분석해 보고자 하였다. 사용된 데이터는 S-NPP위성은 극궤도위성으로 827 km에서 관측하며, 98.7도에서 102분 동안 관측한다. 파장은 Panchromatic 0.5-0.9 ㎛이며, 해상도는 742*742 m이고, 위성에 탑재된 VIIRS 센서의 Day/Night Band (DNB)의 불빛영상자료를 이용하여 분석하였다. DNB 불빛 영상은 낮은 조도의 불빛을 감지하여 정보를 보여 준다. 해양위성센터에서 S-NPP 위성은 매일 3-4회 수신하며, 이 자료처리는 CSPP 3.0버전이 포함된 Terascan S/W로 처리 하였다. CSPP S/W는 Vsible Infrared Imaging Radiometer Suite (VIIRS) Level L1B자료 처리를 위한 SDR (Science Data Records)과 Level2 처리를 위한 EDR (Environmental Data Record) 처리하는 프로그램이다. 또한 SST(Ses Surface Temperature)자료는 NOAA 해수면온도 자료를 이용하여 비교 분석하였다. 연구에 사용된 자료는 이러한 자료의 분석을 통해서 해수면 변화에 따라서 불빛이 분포가 달라지는 것을 확인 하였다.	-
dc.description.uri	2	-
dc.language	Korean	-
dc.publisher	대한원격탐사학회	-
dc.relation.isPartOf	2020 대한원격탐사학회 추계학술대회 논문집	-
dc.title	DNB자료를 이용한 선박의 어획 활동의 위치변화 분석 (사전연구)	-
dc.title.alternative	Analysis of the location Changes of fishing activities of ships using DNB data (Preliminary Results)	-
dc.type	Conference	-
dc.citation.conferenceDate	2020-11-04	-
dc.citation.conferencePlace	KO	-
dc.citation.conferencePlace	온라인	-
dc.citation.title	2020 대한원격탐사학회 추계학술대회	-

Korea 2020

- In this study, the distribution of night fishing areas in the sea was analyzed using the night light of the Day/Night Band (DNB) of the VIIRS sensor of the Suomi National Polar-orbiting Partnership (S-NPP) satellite. the analysis was performed using the light image data of the Day/Night Band (DNB) of the VIIRS sensor mounted on the satellite. DNB light image detects low-intensity light and displays information. At the Maritime Satellite Center, S-NPP satellites are received 3-4 times a day.
- This data processing was done with Terascan S/W with CSPP 3.0 version. CSPP S/W is a program that processes SDR (Science Data Records) for Vsible Infrared Imaging Radiometer Suite (VIIRS) Level L1B data processing and EDR (Environmental Data Record) for Level 2 processing. In addition, SST (Sea Surface Temperature) data were compared and analyzed using NOAA sea surface temperature data. The data used in the study confirmed that the distribution of light varies according to sea level changes through analysis of these data.

US/Spain - 2021

- CSPP ACSPO SSTs from NOAA-20 VIIRS used to validate ECOSTRESS instrument results from the Space Station.



remote sensing

Submit to this Journal

Review for this Journal

Edit a Special Issue

Article Menu

Article Overview

Article Versions

Related Info Links

More by Authors Links

Full Article Text

- Introduction
- Materials and Methods
- Results
- Discussion

Open Access Article

Global Intercomparison of Hyper-Resolution ECOSTRESS Coastal Sea Surface Temperature Measurements from the Space Station with VIIRS-N20

by Nicolas Weidberg [1,2,*], David S. Wethey [1] and Sarah A. Woodin [1]

[1] Department of Biological Sciences, University of South Carolina, Columbia, SC 29208, USA
[2] Coastal Ecology Group, Faculty of Marine Sciences, University of Vigo, 36310 Vigo, Spain
* Author to whom correspondence should be addressed.

Academic Editor: Hirokazu Yamamoto

Remote Sens. **2021**, *13*(24), 5021; https://doi.org/10.3390/rs13245021

Received: 29 September 2021 / Revised: 3 December 2021 / Accepted: 5 December 2021 / Published: 10 December 2021

(This article belongs to the Special Issue Current and Future Earth Observing Sensor Systems aboard the International Space Station (ISS))

Download PDF | Browse Figures | Citation Export

US/Spain - 2021

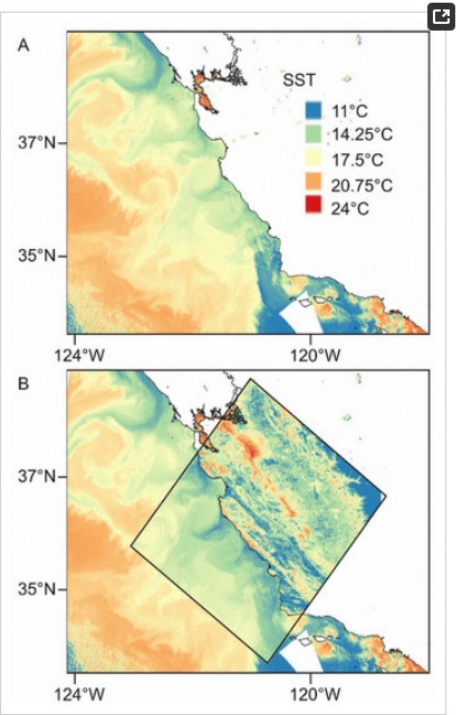


Figure 3. Example of the comparison of ECOSTRESS to VIIRS-N20: (**A**) VIIRS-N20 image off the coast of California on 24 September 2019 09:10 UTC; (**B**) same image with a superimposed quasi-simultaneous ECOSTRESS image taken at 08:49 UTC.

Czech Republic - 2021

- Cukjati, Jernej, Domen Mongus, and Borut Žalik. "A brief survey on the availability of satellite air pollution data." *IOP Conference Series: Earth and Environmental Science*. Vol. 906. No. 1. IOP Publishing, 2021.

2.8. NOAA-20

The National Oceanic and Atmospheric Administration-20 (NOAA-20) is a satellite active from 2017. NOAA-20 features five similar instruments to Suomi NPP: VIIRS, CrIS, ATMS, OMPS-N, and CERES-FM6. NOAA-20 has a design life of seven years, and it circles the Earth in the same orbit as Suomi NPP. However, the two satellites are separated in time and space by 50 minutes [36].

The data can be viewed through the NOAA data explorer [37]. Additionally, other ways are provided for accessing the data [38]. For example, one way is through the Comprehensive Large Array-data Stewardship System (CLASS). CLASS is an electronic library containing the satellites` data. The available data are derived from the Polar-orbiting Operational Environmental Satellite (POES), Geostationary Operational Environmental Satellite (GOES), and NOAA-20 [4]. The data are also available through FTP, Global Telecommunications Service (GTS), EUMETCast, and many others [38].

A Community Satellite Processing Package (CSPP) is available for further processing and interpretation of the satellite data. CSPP is a collection of software systems for processing data from meteorological satellites, precompiled for 64-bit Intel Linux. The primary goal of CSPP is to support users who receive satellite data via a direct broadcast, and to create higher level products and images in real time. CSPP supports products from multiple satellites, including Suomi NPP, NOAA-18/19/20, Metop-A/B, Terra and Aqua [38].

Belarus - 2021

- Золотой, С. А., et al. "Опыт совершенствования программных комплексов дистанционного зондирования Земли для обнаружения тепловых аномалий." *Информатика* 18.4 (2021): 69-78.

Updating the Earth remote sensing software for the detection of thermal anomalies

Sergey A. Zolotoy, Igor B. Strashko, Dzmitry S. Kotau✉, Iryna M. Nestsiarovich, Vitali V. Rouba, Dzianis V. Valakhovich

UE "Geoinformation Systems",
st. Surganova, 6, Minsk, 220012, Belarus
✉E-mail: dkotau@gis.by

Abstract

Objectives.The task of improving the software package for detecting thermal anomalies based on meteorological satellite data developed by the unitary enterprise "Geoinformation Systems" was solved.

Methods. In the period from 2015 to the present, the work on practical testing and improvement of the software for natural fires detection has been carried out. For this purpose, satellite images of the territory of Belarus obtained from NOAA series spacecraft were used. Special attention was paid to the problem of improving the accuracy of determining the coordinates of fires and reducing the time required for initial data processing.

Results. A retrospective analysis of the main stages of improving the software for natural fires detection and obtained during practical tests generalized results are provided. The description of the web service developed on the basis of the software for detecting natural fires is presented.

Conclusion. The information can be useful for the specialists and researchers who are engaged in the detection of thermal anomalies (fires) using remote sensing data from meteorological satellites.

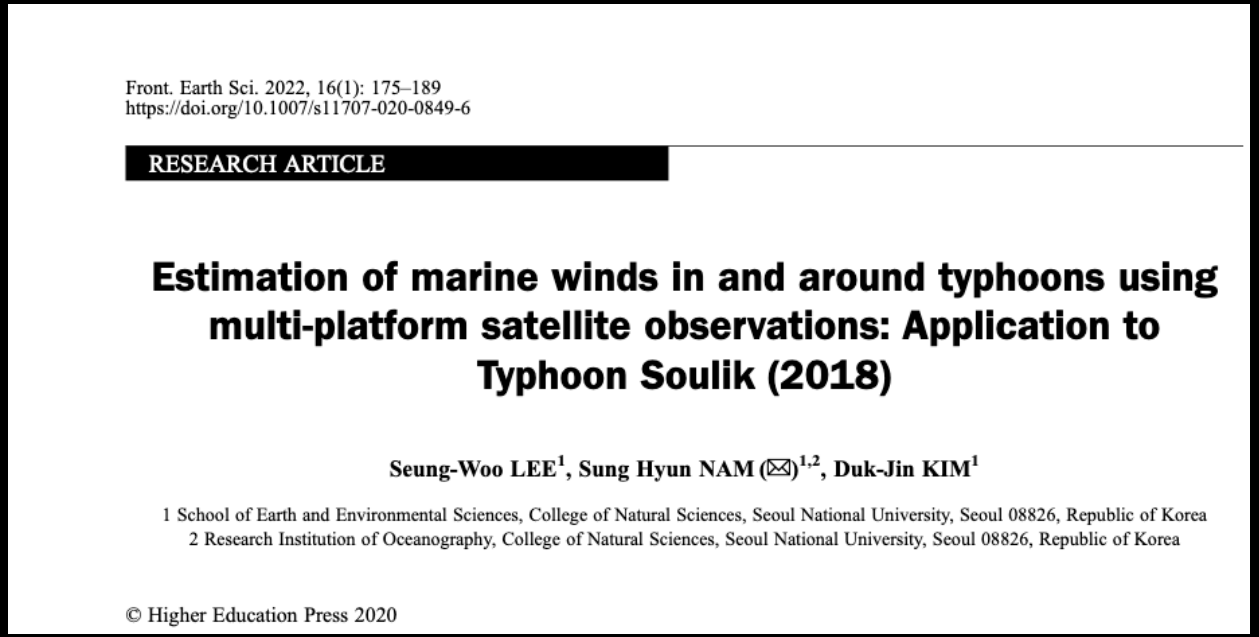
Belarus - 2021

Рис. 6. Сведения о пожаре на территории Беларуси

Fig. 6. Information about a fire in the territory of Belarus

Korea - 2022

- Lee, Seung-Woo, Sung Hyun Nam, and Duk-Jin Kim. "Estimation of marine winds in and around typhoons using multi-platform satellite observations: Application to Typhoon Soulik (2018)." *Frontiers of Earth Science* (2021): 1-15.



Front. Earth Sci. 2022, 16(1): 175–189
https://doi.org/10.1007/s11707-020-0849-6

RESEARCH ARTICLE

Estimation of marine winds in and around typhoons using multi-platform satellite observations: Application to Typhoon Soulik (2018)

Seung-Woo LEE[1], Sung Hyun NAM (✉)[1,2], Duk-Jin KIM[1]

1 School of Earth and Environmental Sciences, College of Natural Sciences, Seoul National University, Seoul 08826, Republic of Korea
2 Research Institution of Oceanography, College of Natural Sciences, Seoul National University, Seoul 08826, Republic of Korea

Korea - 2022

- Using CSPP GAASP software for AMSR-2, in particular, the 10m winds.

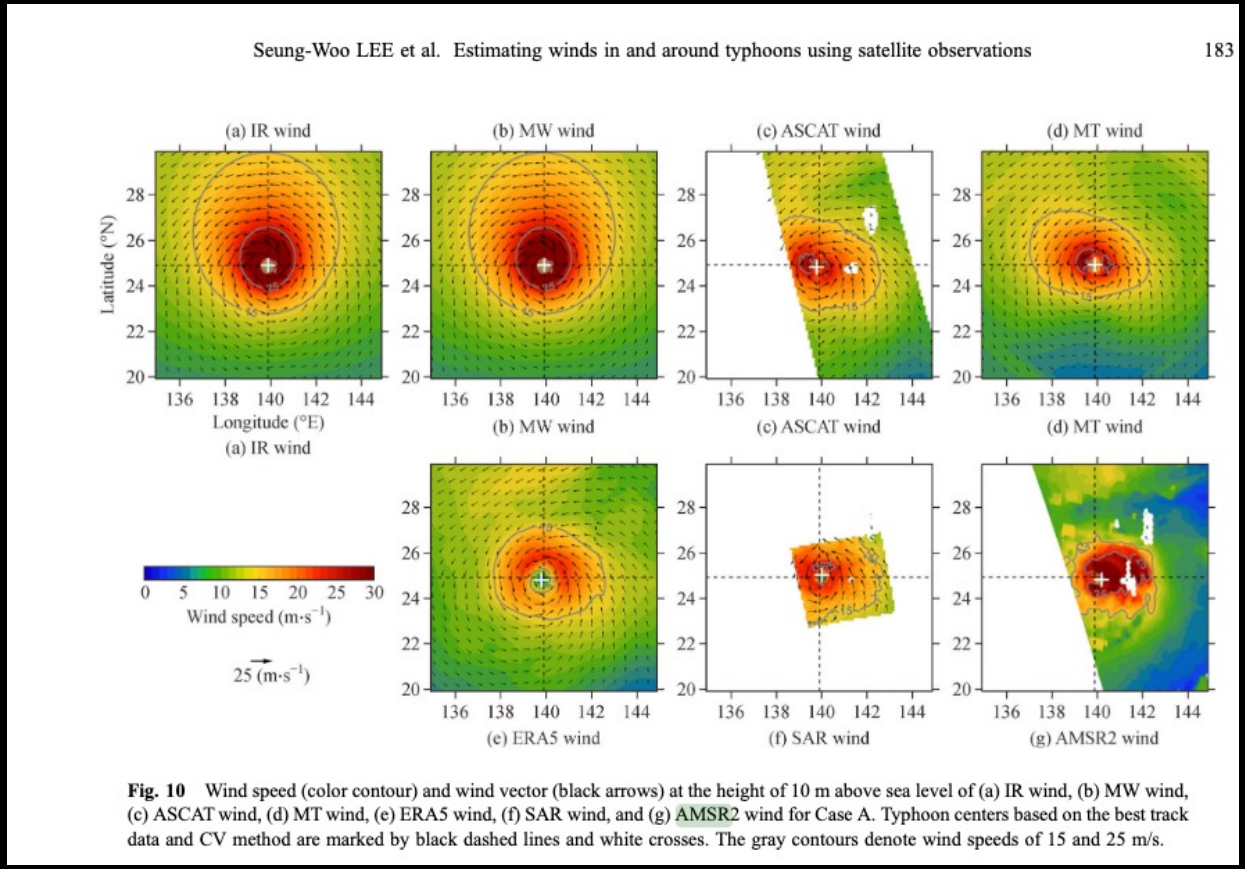
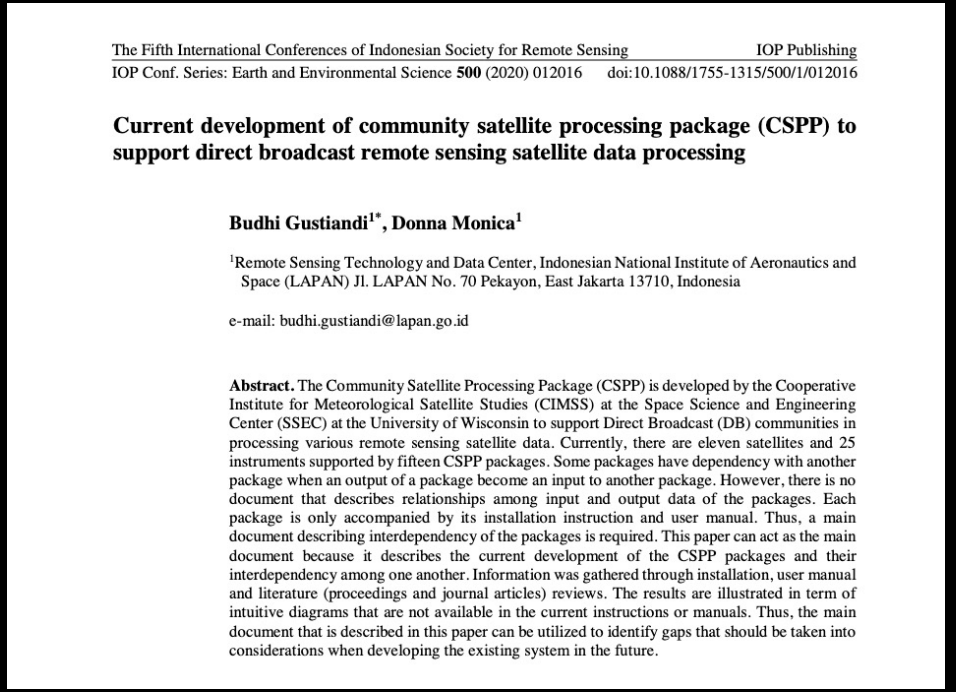


Fig. 10 Wind speed (color contour) and wind vector (black arrows) at the height of 10 m above sea level of (a) IR wind, (b) MW wind, (c) ASCAT wind, (d) MT wind, (e) ERA5 wind, (f) SAR wind, and (g) AMSR2 wind for Case A. Typhoon centers based on the best track data and CV method are marked by black dashed lines and white crosses. The gray contours denote wind speeds of 15 and 25 m/s.

Indonesia - 2020

- Gustiandi, Budhi, and Donna Monica. "Current development of community satellite processing package (CSPP) to support direct broadcast remote sensing satellite data processing." *IOP Conference Series: Earth and Environmental Science*. Vol. 500. No. 1. IOP Publishing, 2020.



The Fifth International Conferences of Indonesian Society for Remote Sensing IOP Publishing
IOP Conf. Series: Earth and Environmental Science **500** (2020) 012016 doi:10.1088/1755-1315/500/1/012016

Current development of community satellite processing package (CSPP) to support direct broadcast remote sensing satellite data processing

Budhi Gustiandi[1*], Donna Monica[1]

[1]Remote Sensing Technology and Data Center, Indonesian National Institute of Aeronautics and Space (LAPAN) Jl. LAPAN No. 70 Pekayon, East Jakarta 13710, Indonesia

e-mail: budhi.gustiandi@lapan.go.id

Abstract. The Community Satellite Processing Package (CSPP) is developed by the Cooperative Institute for Meteorological Satellite Studies (CIMSS) at the Space Science and Engineering Center (SSEC) at the University of Wisconsin to support Direct Broadcast (DB) communities in processing various remote sensing satellite data. Currently, there are eleven satellites and 25 instruments supported by fifteen CSPP packages. Some packages have dependency with another package when an output of a package become an input to another package. However, there is no document that describes relationships among input and output data of the packages. Each package is only accompanied by its installation instruction and user manual. Thus, a main document describing interdependency of the packages is required. This paper can act as the main document because it describes the current development of the CSPP packages and their interdependency among one another. Information was gathered through installation, user manual and literature (proceedings and journal articles) reviews. The results are illustrated in term of intuitive diagrams that are not available in the current instructions or manuals. Thus, the main document that is described in this paper can be utilized to identify gaps that should be taken into considerations when developing the existing system in the future.

Indonesia - 2020

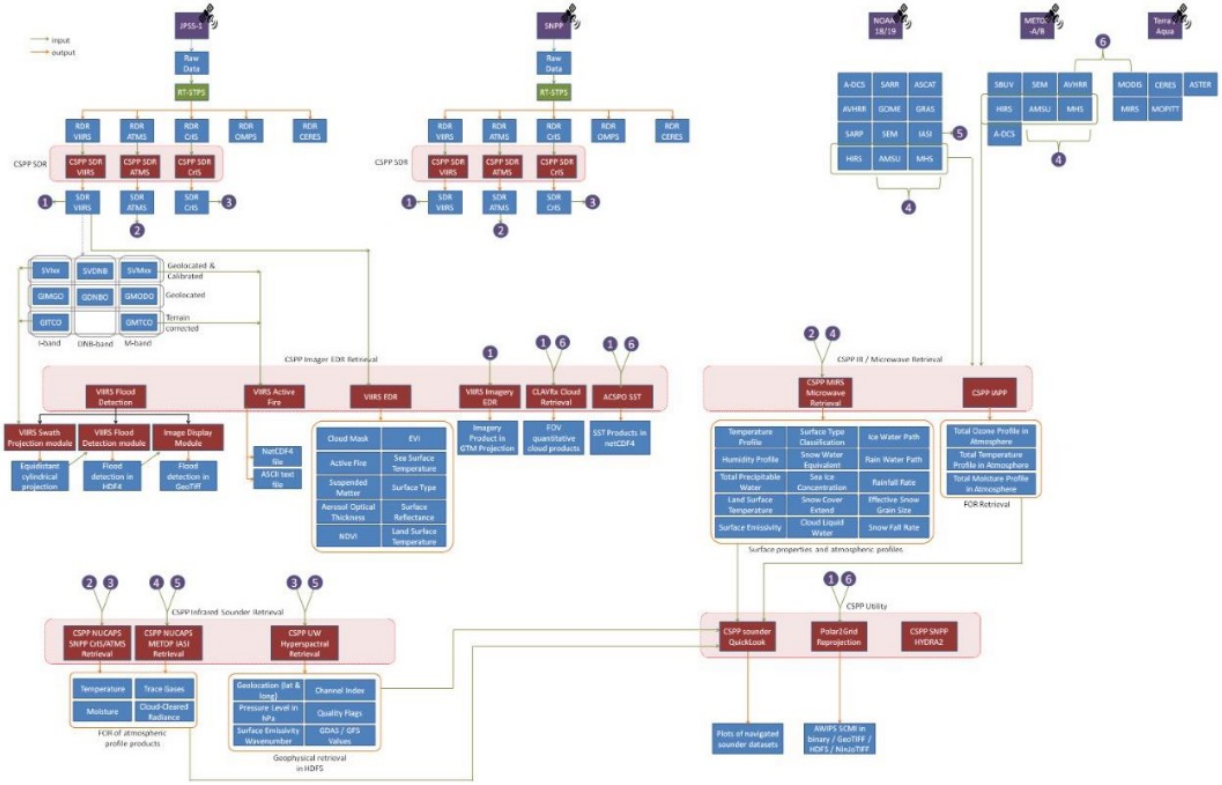


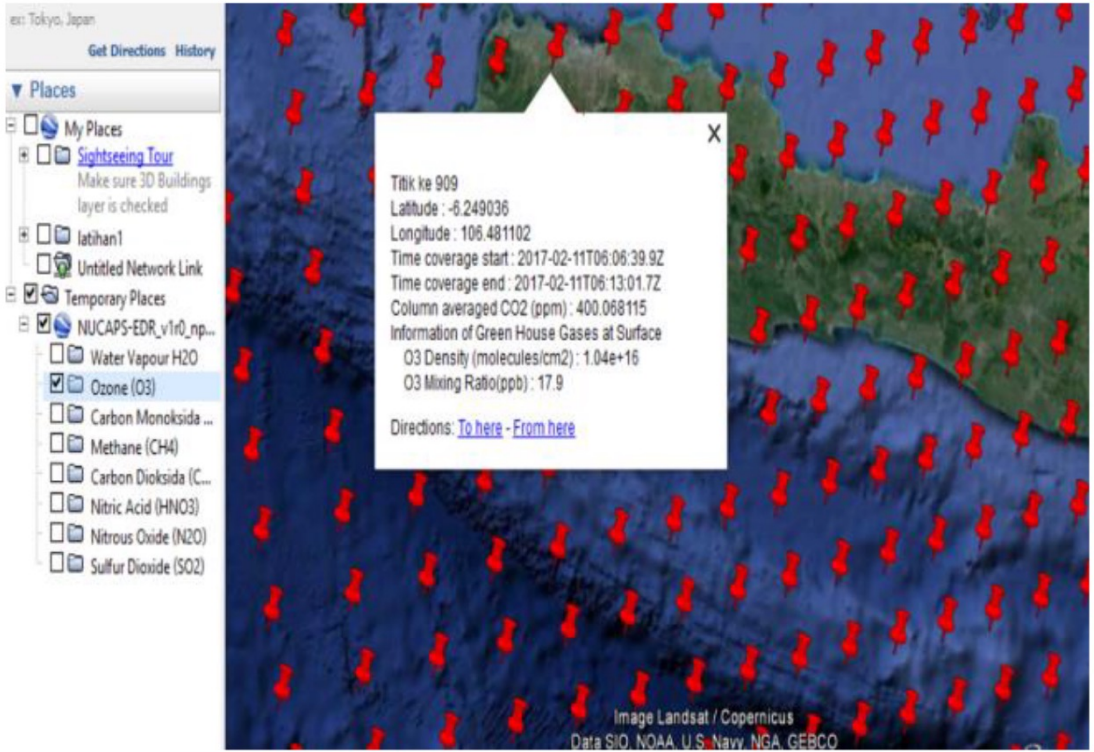
Figure 1. A main block diagram of all current available CSPP packages.

Indonesia 2017

- Indradjad, Andy, N. Salyasari, and Data Penginderaan Jauh LAPAN. "Sistem Informasi Gas Rumah Kaca dari Data ATMS dan CrIS S-NPP Berbasis Google Earth." *Prosiding SNSA* (2017).

Abstract

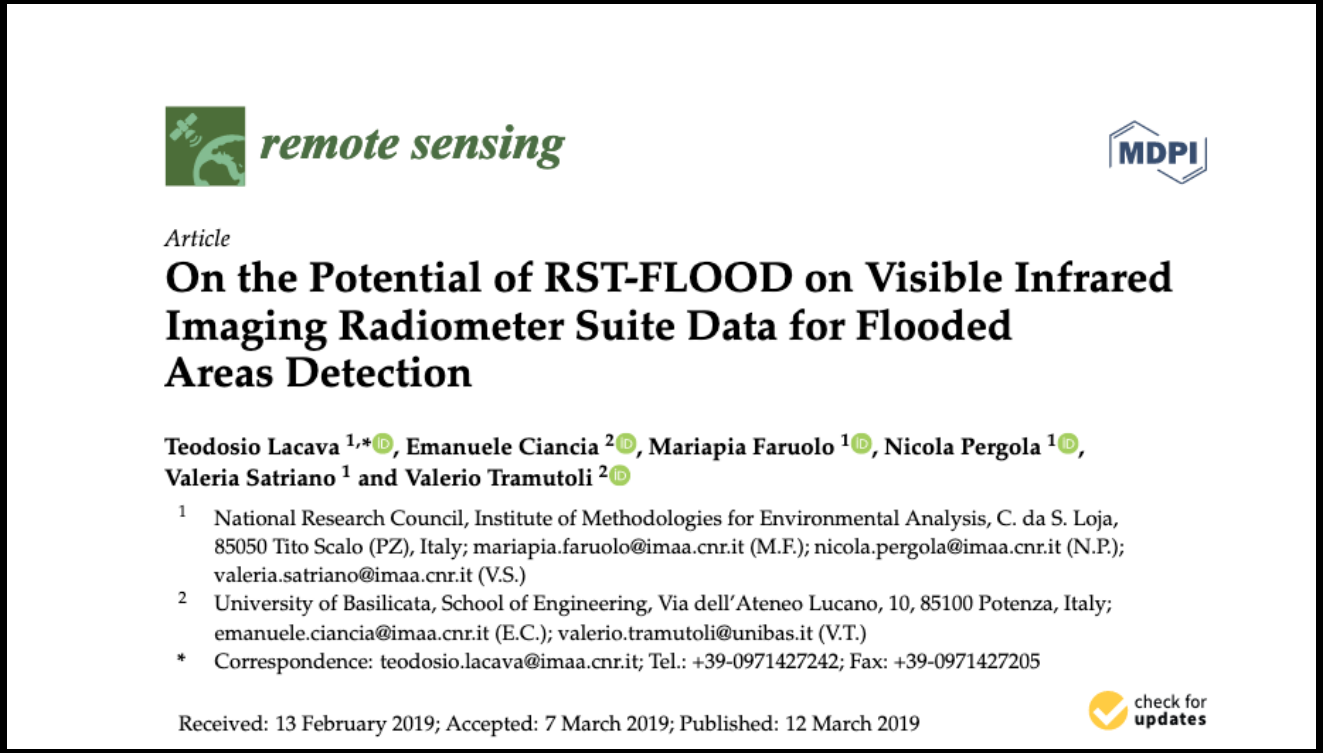
Greenhouse gases are radioactive gases such as CO2, CH4, N20, and CFCs. Increased greenhouse gases impact on rising global temperatures and rising sea levels that cause climate change. Hence it was important to determine the increase of greenhouse gases in our atmosphere. Monitoring the increase of greenhouse gases can utilize the Suomi NPP satellite in which have sensors Crosstrack Infrared Sounder (CrIS) and the Advanced Technology Microwave Sounder (ATMS). By utilizing the tools NUCAPS, CrIS and ATMS were processed into products Suomi NPP level 2 which contains information on the amount of greenhouse gas concentrations. To facilitate the use of the product level 2 CrIS and ATMS in monitoring, we made a information system of greenhouse gases based on Google Earth which will display the results of processing information.



Gambar 2 : Sistem informasi gas rumah kaca dalam bentuk kml

Italy 2019

- Lacava, Teodosio, et al. "On the potential of RST-FLOOD on visible infrared imaging radiometer suite data for flooded areas detection." *Remote Sensing* 11.5 (2019): 598.



remote sensing

MDPI

Article

On the Potential of RST-FLOOD on Visible Infrared Imaging Radiometer Suite Data for Flooded Areas Detection

Teodosio Lacava [1,*], Emanuele Ciancia [2], Mariapia Faruolo [1], Nicola Pergola [1], Valeria Satriano [1] and Valerio Tramutoli [2]

1 National Research Council, Institute of Methodologies for Environmental Analysis, C. da S. Loja, 85050 Tito Scalo (PZ), Italy; mariapia.faruolo@imaa.cnr.it (M.F.); nicola.pergola@imaa.cnr.it (N.P.); valeria.satriano@imaa.cnr.it (V.S.)

2 University of Basilicata, School of Engineering, Via dell'Ateneo Lucano, 10, 85100 Potenza, Italy; emanuele.ciancia@imaa.cnr.it (E.C.); valerio.tramutoli@unibas.it (V.T.)

* Correspondence: teodosio.lacava@imaa.cnr.it; Tel.: +39-0971427242; Fax: +39-0971427205

Received: 13 February 2019; Accepted: 7 March 2019; Published: 12 March 2019

check for updates

Italy 2019

- In more detail, SNPP Sensor Data Record (SDR) data, directly acquired at the satellite receiving station of the Institute of Methodology for Environmental Analysis (IMAA) located in Tito Scalo (Basilicata region, southern Italy), have been processed by running the Community Satellite Processing Package (CSPP). Furthermore, SDR data were downloaded from NOAA CLASS archive to fill any gaps within the considered historical series. The Polar2Grid v2.2 software allowed the SDR spatial sub-setting over the ROI.

number of probably flooded pixels detected by RST-FLOOD and VNG considering both the whole scene as well as the black box for the five analysed days, exploring also common detections.

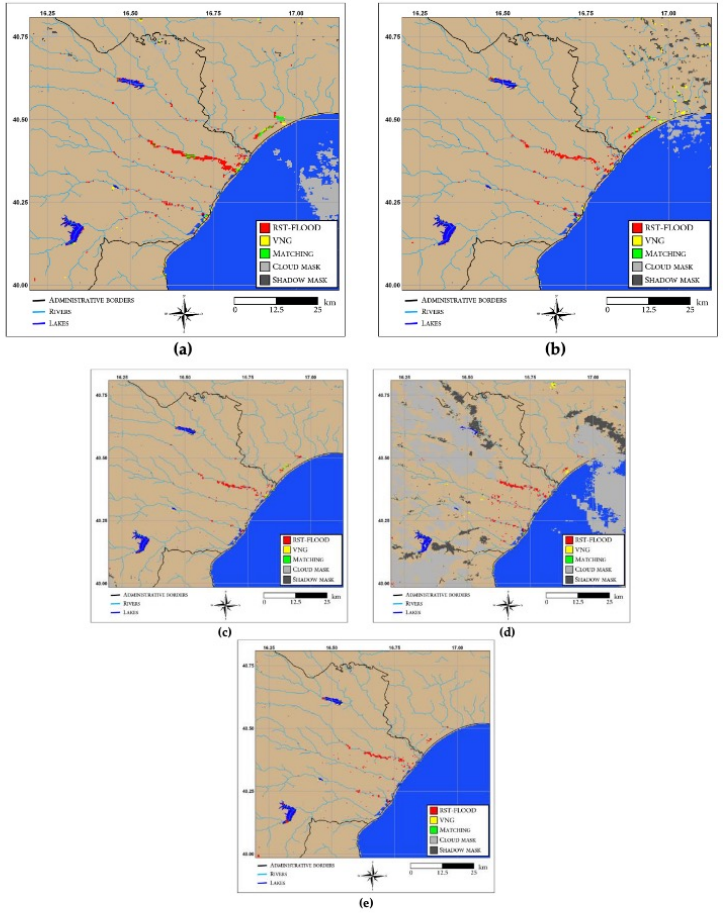


Figure 13. Comparison between flooded areas detected by RST-FLOOD using $ALICE_{NDSI} \geq 3$ (red pixels) and VNG (yellow pixels) on VIIRS data acquired on: (**a**) 04/12/2013; (**b**) 05/12/2013; (**c**) 06/12/2013; (**d**) 07/12/2013; (**e**) 08/12/2013. Common detections are depicted in green.

2022 Quad Leaders Summit

THE WHITE HOUSE

Administration Priorities COVID Plan Briefing Room Español MENU

BRIEFING ROOM

FACT SHEET: Quad Leaders' Tokyo Summit 2022

MAY 23, 2022 • STATEMENTS AND RELEASES

In Tokyo, President Biden, Prime Minister Anthony Albanese of Australia, Prime Minister Modi of India, and Prime Minister Kishida of Japan will advance the Quad's ambitious and diverse agenda, including through a major new initiative to improve maritime domain awareness across the Indo-Pacific.

The leaders of the Quad nations—Australia, India, Japan, and the United States—will meet on May 24, 2022 in Tokyo for the fourth time and the second time in person. Established in the wake of the 2004 Indian Ocean Tsunami to coordinate humanitarian assistance and disaster relief, the Quad has since become a leading regional partnership dedicated to advancing a common vision of a free and open Indo-Pacific through practical cooperation on diverse 21st-century challenges. With six leader-level working groups—on COVID-19 Response and Global Health Security, Climate, Critical and Emerging Technologies, Cyber, Space, and Infrastructure—the Quad is building habits of cooperation among our four countries that will support a more peaceful and prosperous Indo-Pacific. President Biden and his fellow Quad leaders welcome the following announcements from the Tokyo Summit:

2022 Quad Leaders Summit

Space

As leaders in space, Quad countries are strengthening cooperation and pooling our collective expertise to exchange satellite data, enable capacity-building, and consult on norms and guidelines.

- Quad partners will strengthen their commitments to the free, full, and open **sharing of space-based civil Earth observation data,** and will jointly develop and promote the concept of Open Science in the region and globally.
- The United States will coordinate with Quad partners on its **cooperative civil Earth observation programs,** to include the National Aeronautics and Space Administration (NASA) GLOBE and DEVELOP programs; the National Oceanic and Atmospheric Administration (NOAA) Community Satellite Processing Package (CSPP) and Satellite Proving Ground Flood Mapping Portal; as well as the U.S. Geological Survey (USGS) National Land Imaging Program.

Conclusions

- There is a large global CSPP user community, most of whom we do not know about.
- The results of this simple study indicate the software is being used globally for a variety of applications and prove the value and integrity of the products created by the software.

Polar2Grid

Polar2Grid Version 3.0

- Significant update
  - Change to use Python Satpy library means changes to the basic implementation
  - polar2grid.sh -r <reader> -w <writer>
  - Take advantage of Dask – more efficient and much less memory intensive
  - Satpy features can be much more easily incorporated into P2G
  - Future updates much easier

- Target Release Date
  - End of August 2022