DAN report in Yamaguchi University

Yamaguchi University

Director, Center for Research and Application for Satellite Remote Sensing

Masahiko Nagai

DAN Report (Yamaguchi University)

① Support International Disaster Operation in Sentinel Asia

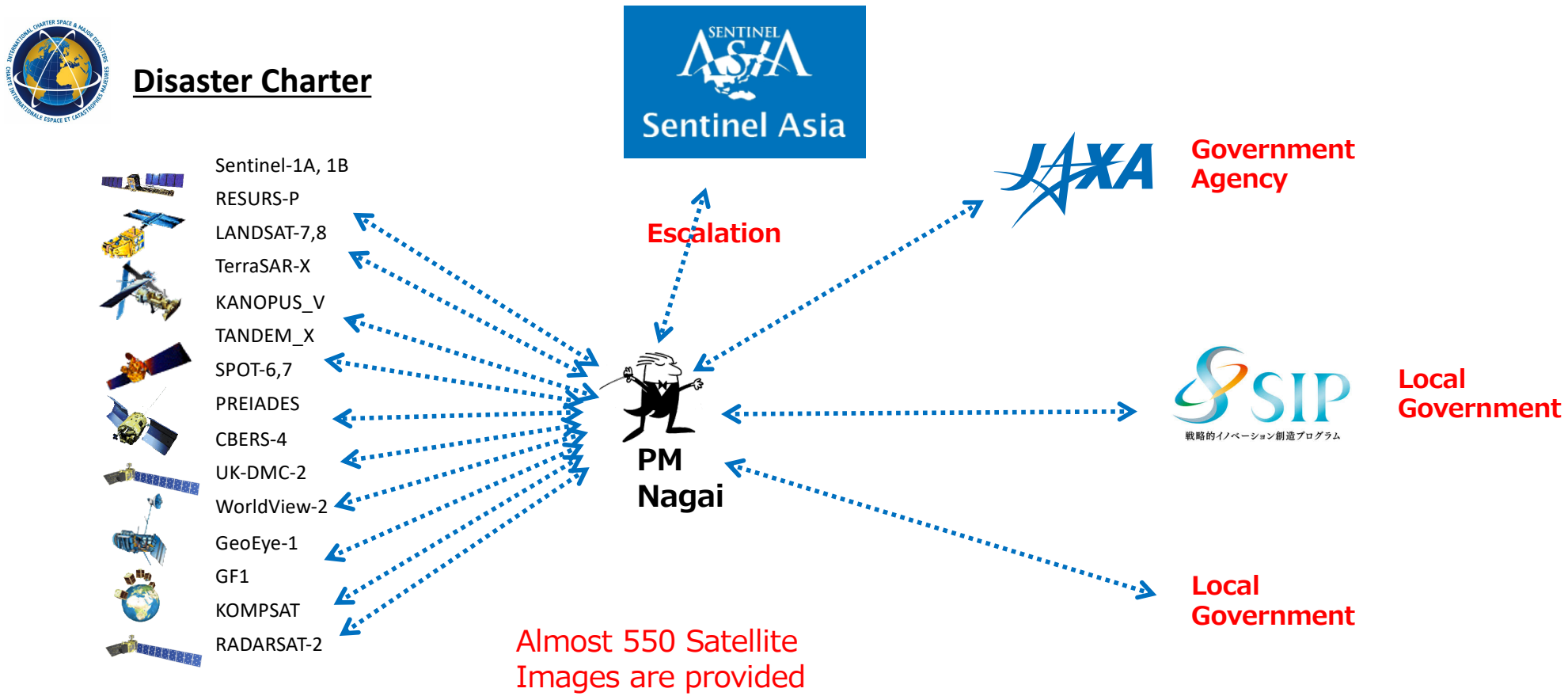
② Support Domestic (Japan) Disaster with Sentinel Asia and International Disaster Charter

③ Support Sentinel Asia SC activity, Leading “Value Added Product (VAP)” team

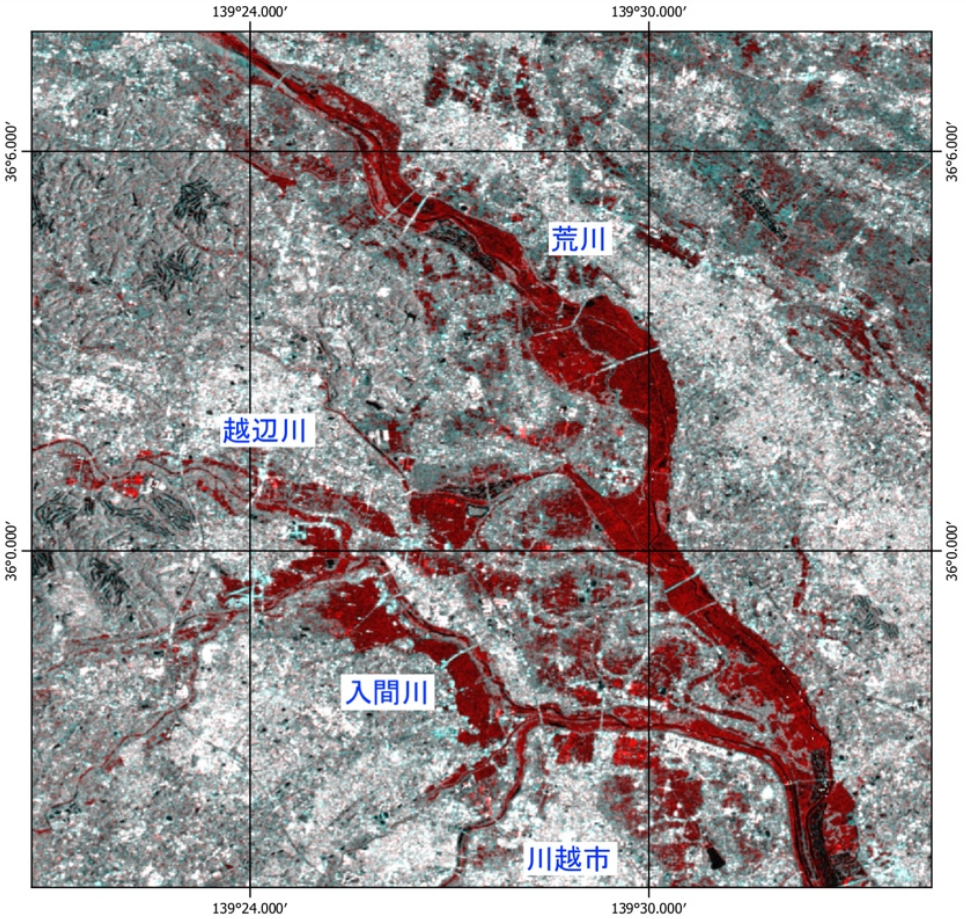
④ Development of University Network for Massive Disaster

⑤ Development of Educational Material with MEXT

Storm & Typhoon Hagibis, Japan



Possible flooded areas using Sentinel 1 in Saitama prefecture, Japan



Map information

Possible flood are

Data source

Image: Sentinel 1B
Image date: 2019-10-06 and 2019-10-12
Image copyright © European Space Agency - ESA

0 1 2 km

N

Accuracy is not validated
Map produced by Yamaguchi University

Sentinel Asia

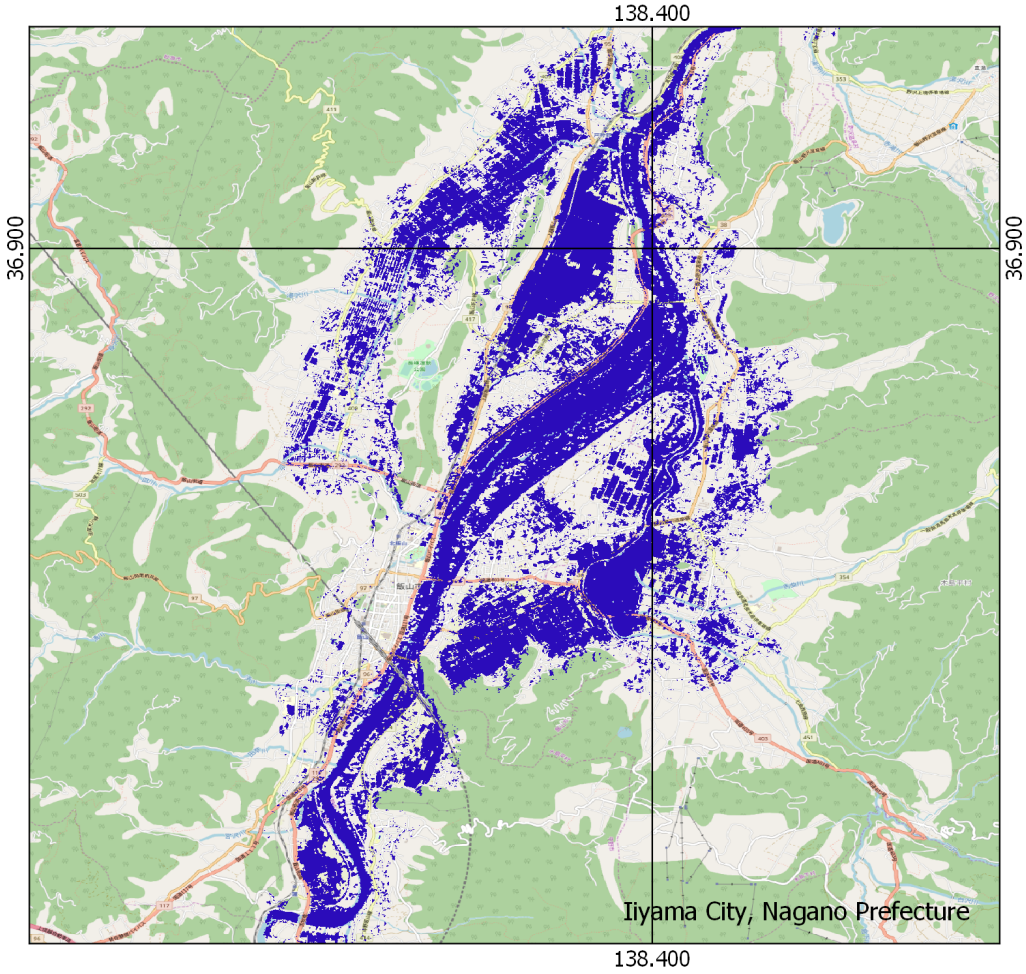
esa

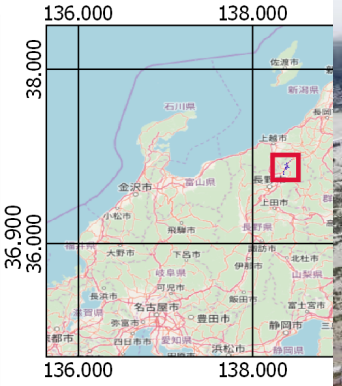
YAMAGUCHI UNIVERSITY

SIP

https://www.jiji.com/jc/p?id=20191013142904-0032859247

Detected water areas using ALOS-2/PALSAR-2 in Nagano prefecture, Japan





Map information

Possible water an

Data source

Image: ALOS-2/PALSAR-2
Image date: 2019-10-13
Image copyright © JAXA

0 750 1500 m

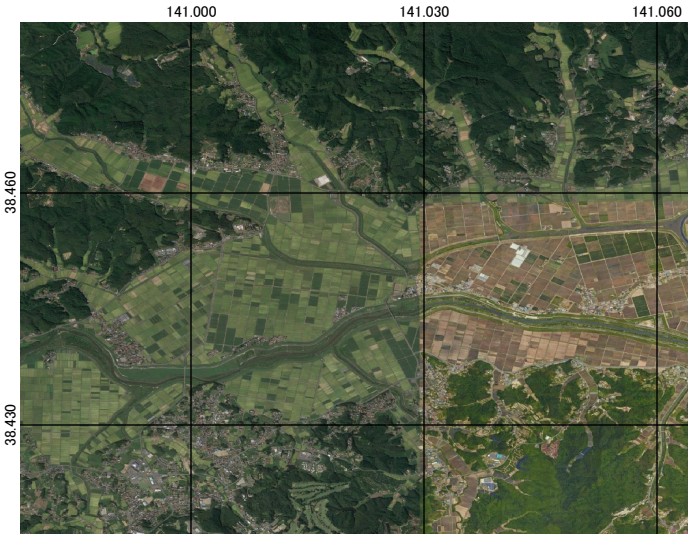
N

Accuracy is not validated
Map produced by Yamaguchi University

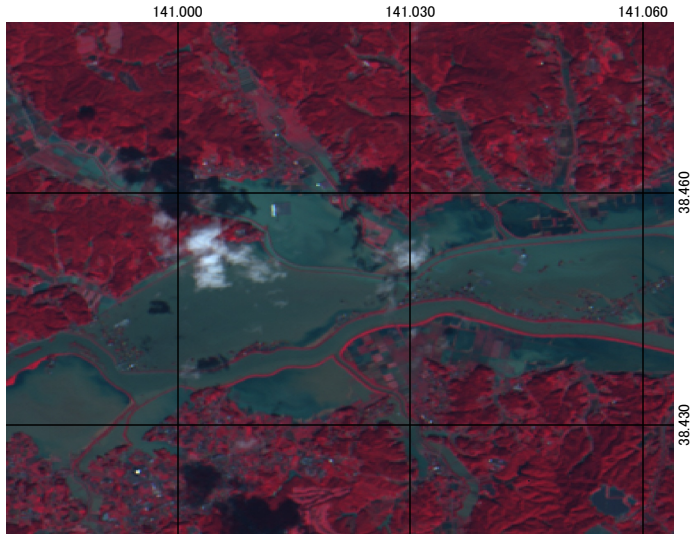
Chikuma River

https://www.sankei.com/region/news/191014/rgn1910140014-n1.html

Possible flooded area using CBERS-4 in Oosato-cho,Miyagi prefecture,Japan



Before disaster(Google satellite)



After disaster(CBERS-4)

Yoshida River

https://www3.nhk.or.jp/news/html/20191013/k10012128541000.html

Google map

Map information

0 1 2 3 km

Possible flood areas

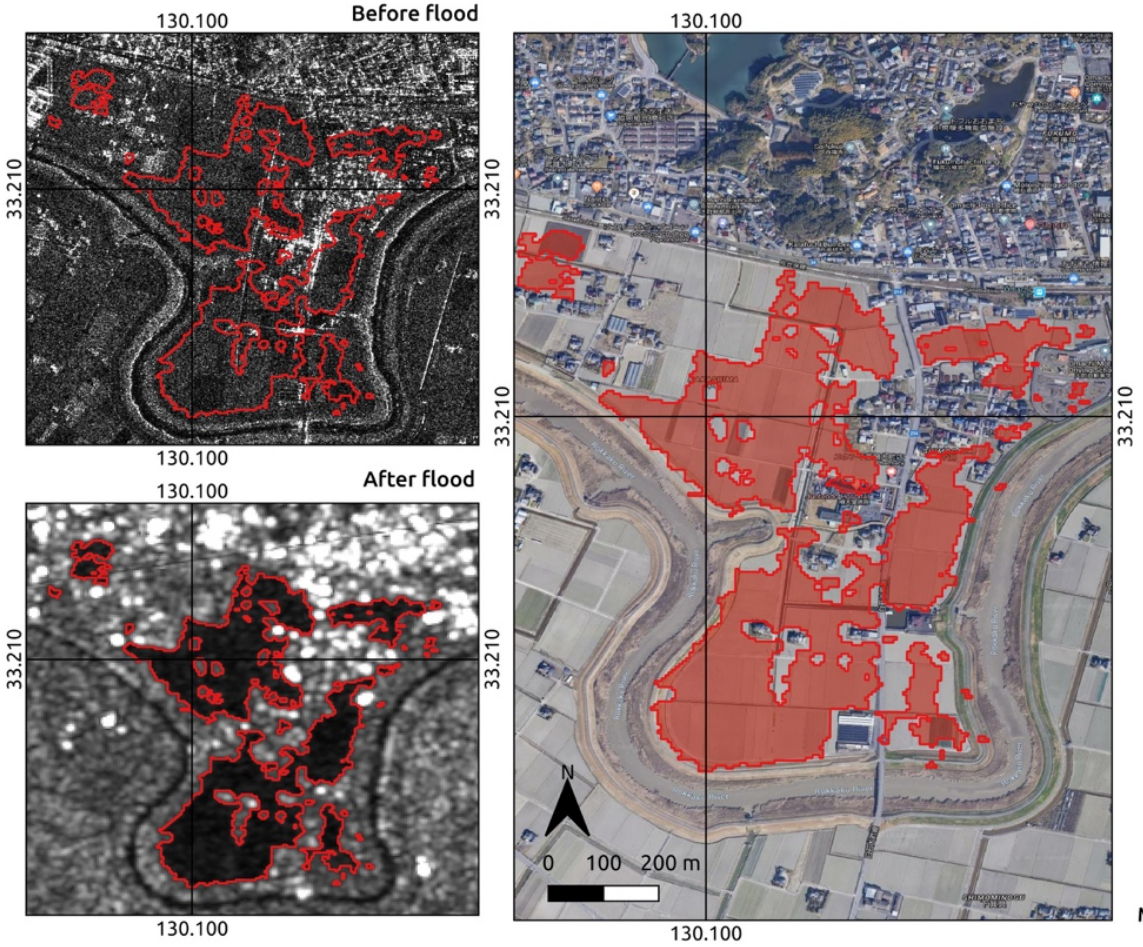
Data source

Image: CBERS-4
Image date: 2019-10-13
Image copyright: Instituto Nacional Penitenciario

Sentinel Asia

YAMAGUCHI UNIVERSITY

Oil leaking and flooding areas, observed by KOMPSAT-5, Saga prefecture, Japan



Map information

Oil leaking and flooding areas (about 0.3 sq.km.)

Accuracy is not validated

Data source

Image: KOMPSAT-5
Date: 2019-04-05 and 2019-08-29
Image copyright © KARI

Map produced by Yamaguchi University

https://www.kobe-np.co.jp/news/zenkoku/compact/201908/p1_0012648276.shtml

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Sentinel Asia

Strategic Plan
2017-2027

-Value Added Product (VAP)-

The document describes potential input for Sentinel Asia Action Plan 2017-2027, based on the issues and opportunities discussed and identified on October 2018.

I. Satellite Data Provisions and Systems
II. Value Added Product (VAP)
III. End-user Enhancement
IV. Step-3 Activities (Complete DRR cycle)
V. Communication, Collaboration and Cooperation

Main Topics

Ⅱ. Value Added Product (VAP)

4.2.1 Research and Development (R&D)

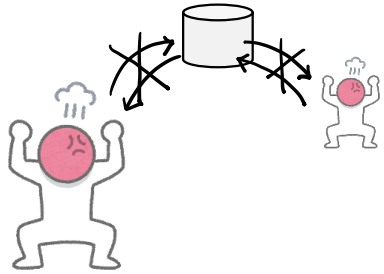
- 4.2.1-1-S Standard Operation Procedure (SOP)
- 4.2.1-2-S Standardization of VAP.
- 4.2.1-3-L Researches on Urban Flood Mapping

4.2.2 Product Development

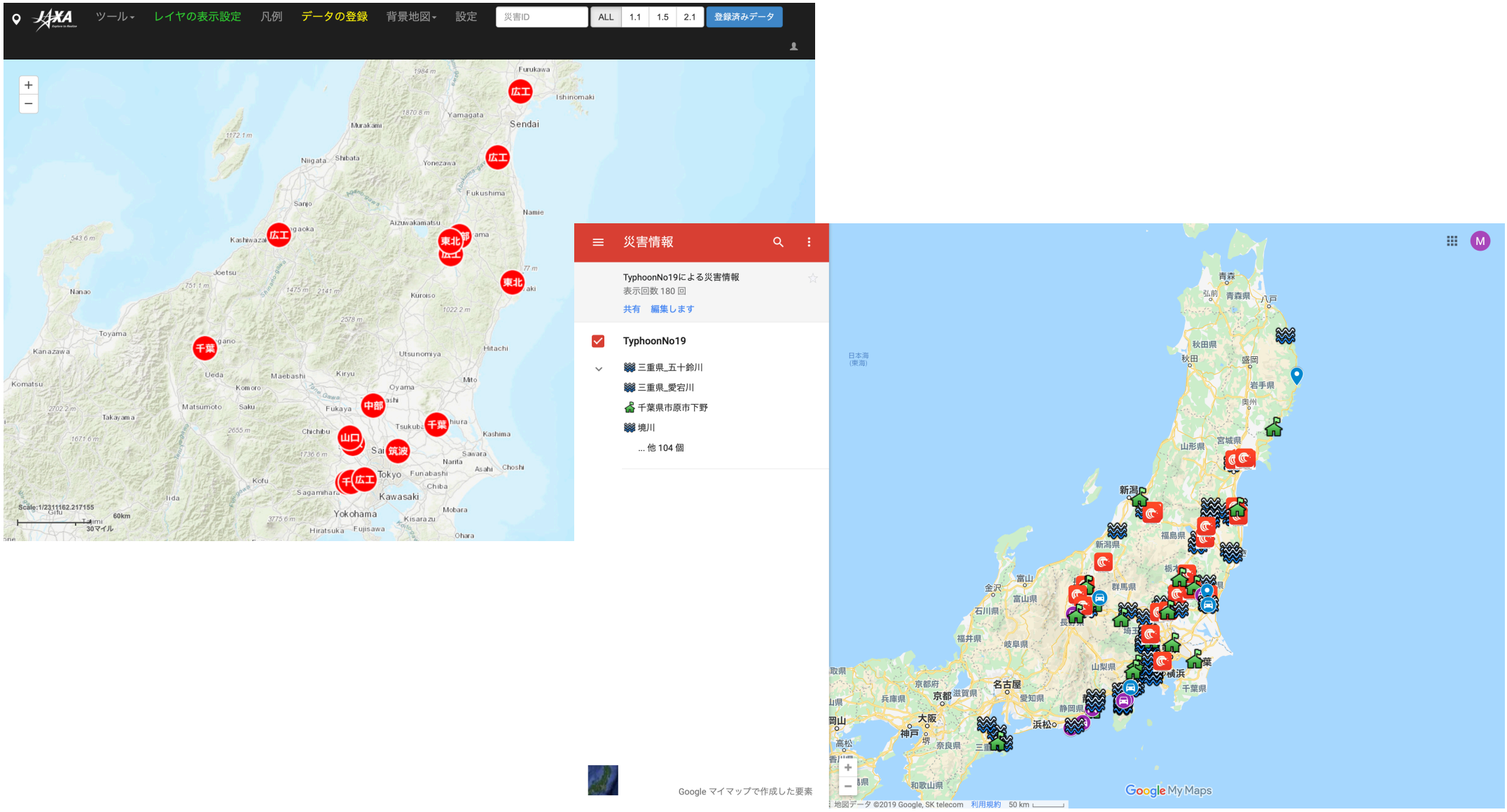
- 4.2.2-1-M VAP through University Network
- 4.2.2-2-M Review Data Policy and Data for R&D
- 4.2.2-3-M Identify the potential use case of VAPs in disaster
- 4.2.2-4-M In-situ data collection through GNSS
- 4.2.2-5-M Pre-disaster image repository and access

Problems with Growing Data Archive

- "Data download and work, then upload" is so inefficient!
  - Data size is so huge (esp. higher spatial/temporal resolution, more bands and wave lengths….).
  - And data transfer could be slow.
  - Co-work for an integrated product is difficult.



- Data processing and analysis will be more complicated
  - If we can FULLY use all data, we can do much better. But we don't know how to use. (Where?, copy right?, in-situ data?)
  - Need to improve tools of handling big/heterogeneous data.
  - Sharing Artificial Intelligence tools?
  - Sharing activities during emergency mapping


JAXA
ツール
レイヤの表示設定
凡例
データの登録
背景地図
設定
災害ID
ALL
1.1
1.5
2.1
登録済みデータ
広工
東北
千葉
中部
山口
筑波
Sendai
Tokyo
Kawasaki
Yokohama
Scale:1/2311162.217155
60km
30マイル
災害情報
TyphoonNo19による災害情報
表示回数 180 回
共有
編集します
TyphoonNo19
三重県_五十鈴川
三重県_愛宕川
千葉県市原市下野
境川
... 他 104 個
Google マイマップで作成した要素
青森
秋田
盛岡
岩手県
奥州
山形県
宮城県
新潟
福島県
新潟県
群馬県
富山
富山県
金沢
石川県
福井県
岐阜県
山梨県
横浜
千葉県
名古屋
愛知県
静岡県
浜松
京都府
京都
滋賀県
兵庫県
大阪
神戸
奈良県
和歌山県
日本海
(東海)
Google My Maps
地図データ ©2019 Google, SK telecom
利用規約
50 km

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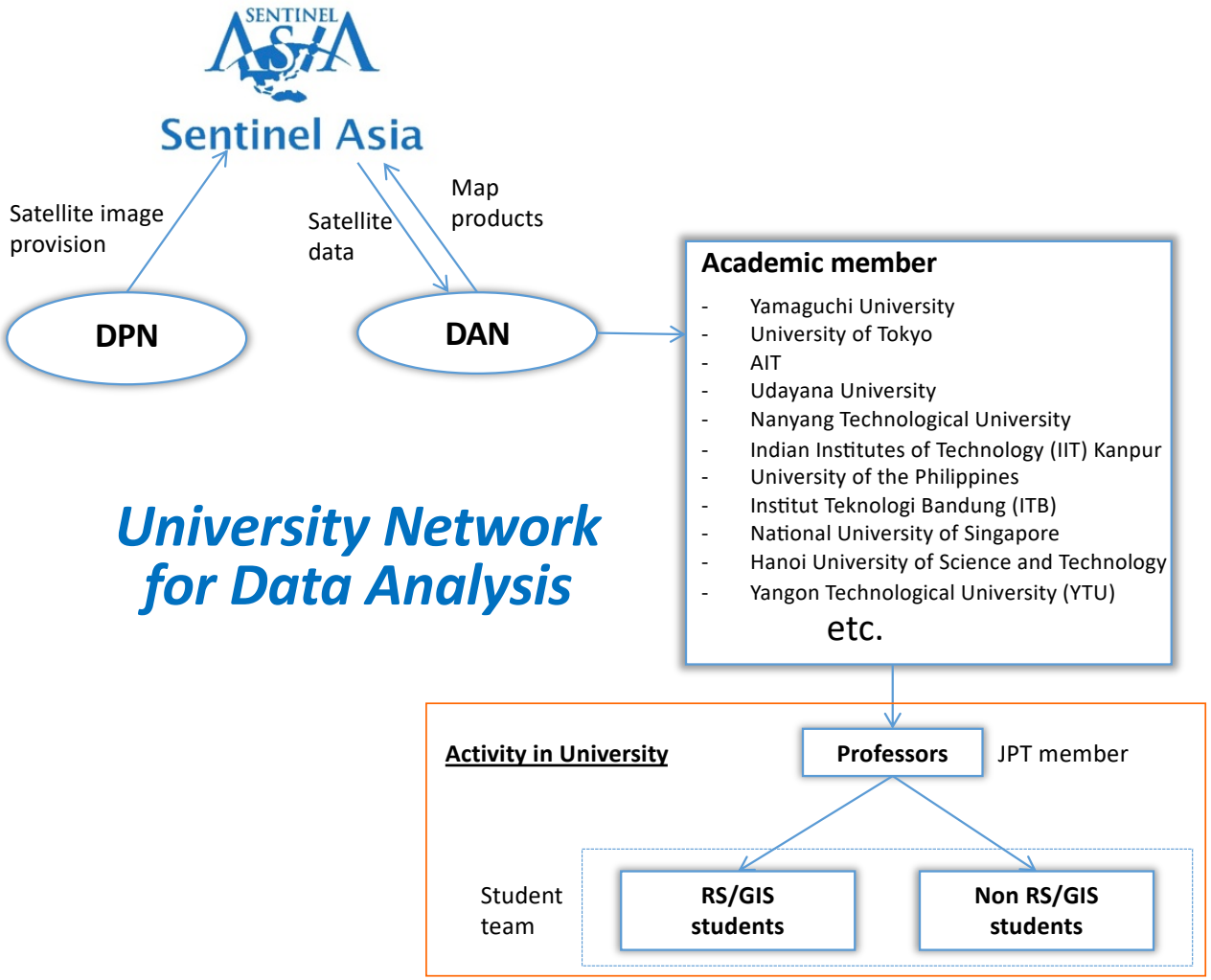
University Network for Data Analysis



Concepts

- To conduct satellite data analysis for disaster emergency situation.
- To conduct more advanced data analysis
- This is academic activity, resarch and education.
- This is voluntary based activity.

Expected effects

- To secure data analysis resources in case of huge disaster.
- To collect local disaster information.
- To build up Asian academic network.
- To build up capacity for students.
- Students will be very imporant member in the future.
- To share our activities.

Get to know basic of python

GDAL

GDAL INSTALLATION

Get to know basic of python

ภาควิชาภูมิศาสตร์
คณะสังคมศาสตร์
มหาวิทยาลัยเกษตรศาสตร์

หน้าหลัก | บุคลากร | หลักสูตร | การจัดการความรู้ | วารสาร 4PDS

บรรยายในหัวข้อ การสำรวจระยะไกลด้วยระบบ Synthetic Aperture Radar (SAR) สำหรับภัยพิบัติ

จากความร่วมมือระหว่างมหาวิทยาลัยยามากุจิ (Yamaguchi University) ประเทศญี่ปุ่น และ ภาควิชาภูมิศาสตร์ มหาวิทยาลัยเกษตรศาสตร์ นักวิจัยของมหาวิทยาลัย Yamaguchi University Dr. Nopphawan TAMKUAN, โดยการสนับสนุนของ Associate Professor Masahiko NAGAI เดินทางมาบรรยายในหัวข้อ การสำรวจระยะไกลด้วยระบบ Synthetic Aperture Radar (SAR) สำหรับภัยพิบัติ ในวันจันทร์ที่ 11 กุมภาพันธ์ 2562 เวลา 9.30 - 12.30 น. ณ ห้อง 3-601 อาคาร 3 ชั้น 6 คณะสังคมศาสตร์ มหาวิทยาลัยเกษตรศาสตร์

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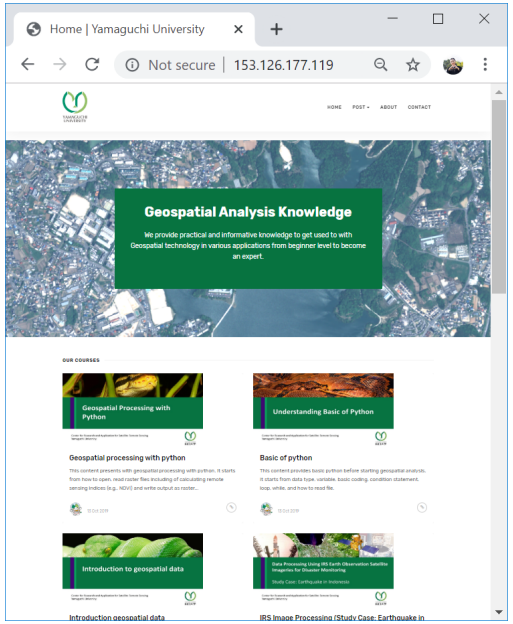
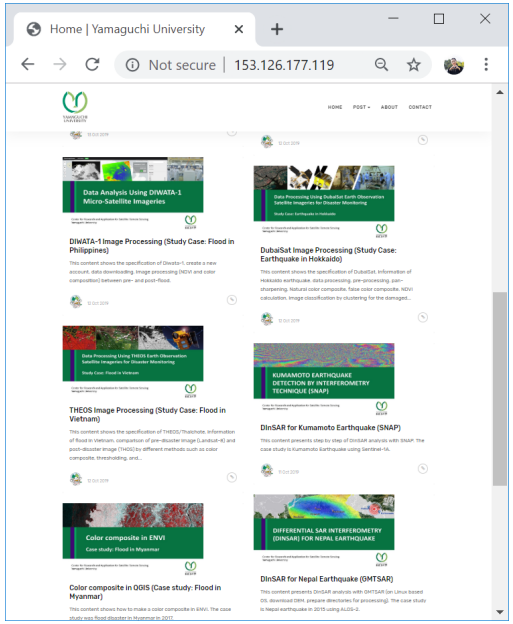
Yamaguchi University Resource (website)

- Collect materials and procedure how to analysis geospatial data especially for disaster application
- Implement to our students and university network to be able to join data analysis activity for emergency case





http://bit.do/eduweb