

# Sentinel Asia Data Provider Node Report



Joint Project Team Meeting for Sentinel Asia STEP3  
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Yuji TAKADA

Space Applications and Operations Center (SAOC)  
Japan Aerospace Exploration Agency (JAXA)



# Executed ALOS-2 Observation in 2017

(plus Mayon Volcanic Eruption of 15 Jan. 2018 & Kadovar Volcanic Eruption of 5 Jan. 2018)

## 29 Executed ALOS-2 Observation for 32 EORs in 2017 (including Mayon Volcanic Eruption of 15 Jan. 2018)

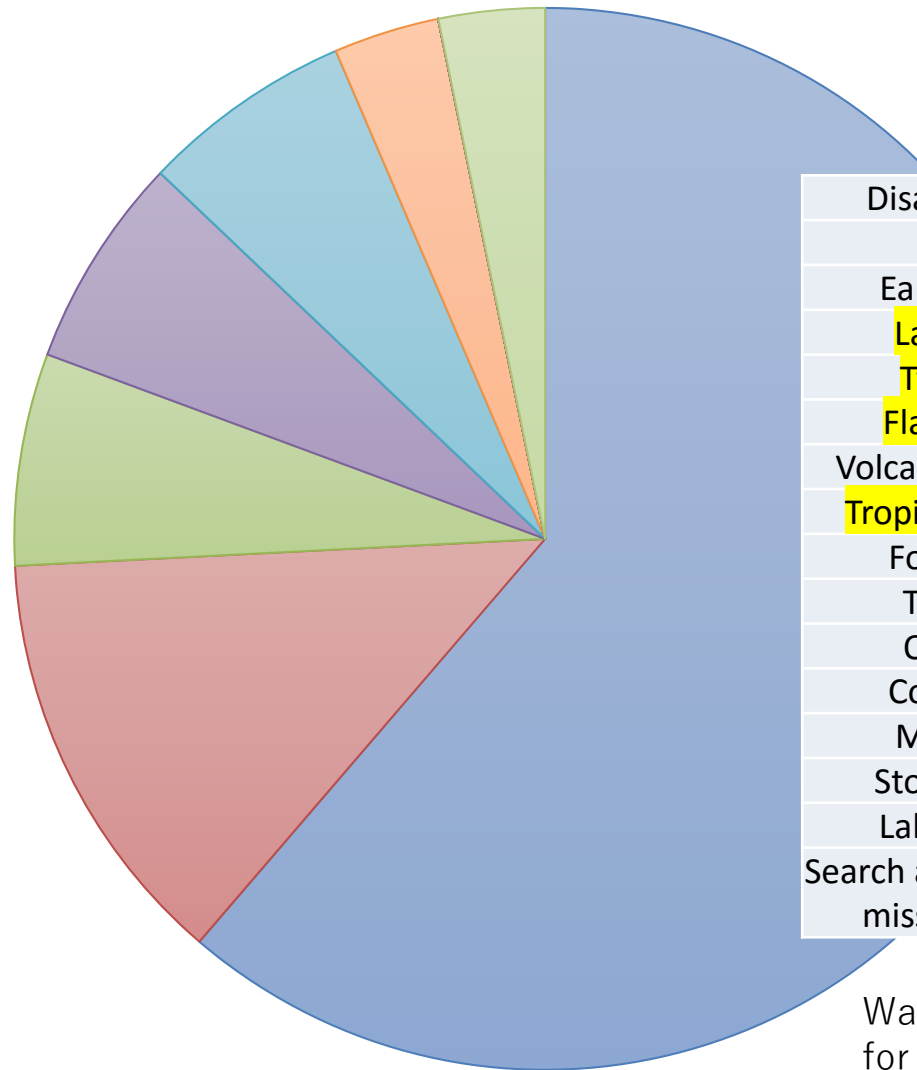


(This is a list as of 19 January 2018)

Disaster occurrence date (*Descending order to latest time)	Country	Disaster Type
2018/1/15	Philippines	Volcanic Eruption
2017/12/25	Vietnam	Flood
2017/12/2	India	Missing boots
2017/11/21	Indonesia	Volcanic Eruption
2017/11/19	Vietnam	Flood
2017/11/15	Korea	Earthquake
2017/11/4	Vietnam	Flood
2017/10/19	Philippines	Flood
2017/10/17	Vietnam	Flood
2017/10/14	Taiwan	Flood
2017/10/9	Vietnam	Flood
2017/9/15	Vietnam	Flood
2017/8/10	Nepal	Flood and Landslide
2017/8/10	Bangladesh	Flood
2017/8/8	China	Earthquake
2017/8/3	Vietnam	Flood
2017/7/29	Taiwan	Flood, Typhoon
2017/7/25	Vietnam	Flood
2017/7/17	Vietnam	Typhoon, Flood
2017/7/6	Philippines	Earthquake
2017/6/23	China	Landslide
2017/6/13	Bangladesh	Flood/Landslide
2017/6/2	Taiwan	Flood
2017/5/24	Sri Lanka	Flood
2017/4/20	Nepal	GLOF
2017/2/14	Indonesia	Flood
2017/2/10	Philippines	Earthquake
2017/1/16	Philippines	Flood
2017/1/6	Thailand	Flood

**kadovar Volcanic Eruption occurred at Papua New Guinea on 5 Jan., 2018. PNG National Disaster Center submitted EOR on 20 Jan., 2018. ALOS-2 data of 10 and 18 Jan., 2018 had been provided on 22 Jan., 2018.**

# Occurred Disaster type in 2017



Disaster type	2016	2017	2018
Flood	11	19	0
Earthquake	4	4	0
Landslide	3	3	0
Typhoon	4	2	0
Flash flood	3	2	0
Volcano eruption	1	1	1
Tropical cyclone	3	0	0
Forest fire	1	0	0
Tsunami	0	0	0
Oil spills	1	0	0
Cold wave	0	0	0
Mudslide	0	0	0
Storm surge	0	0	0
Lahar flows	1	0	0
Search and Rescue of missing Boats	0	1	0

(This is a list as of 19 January 2018)

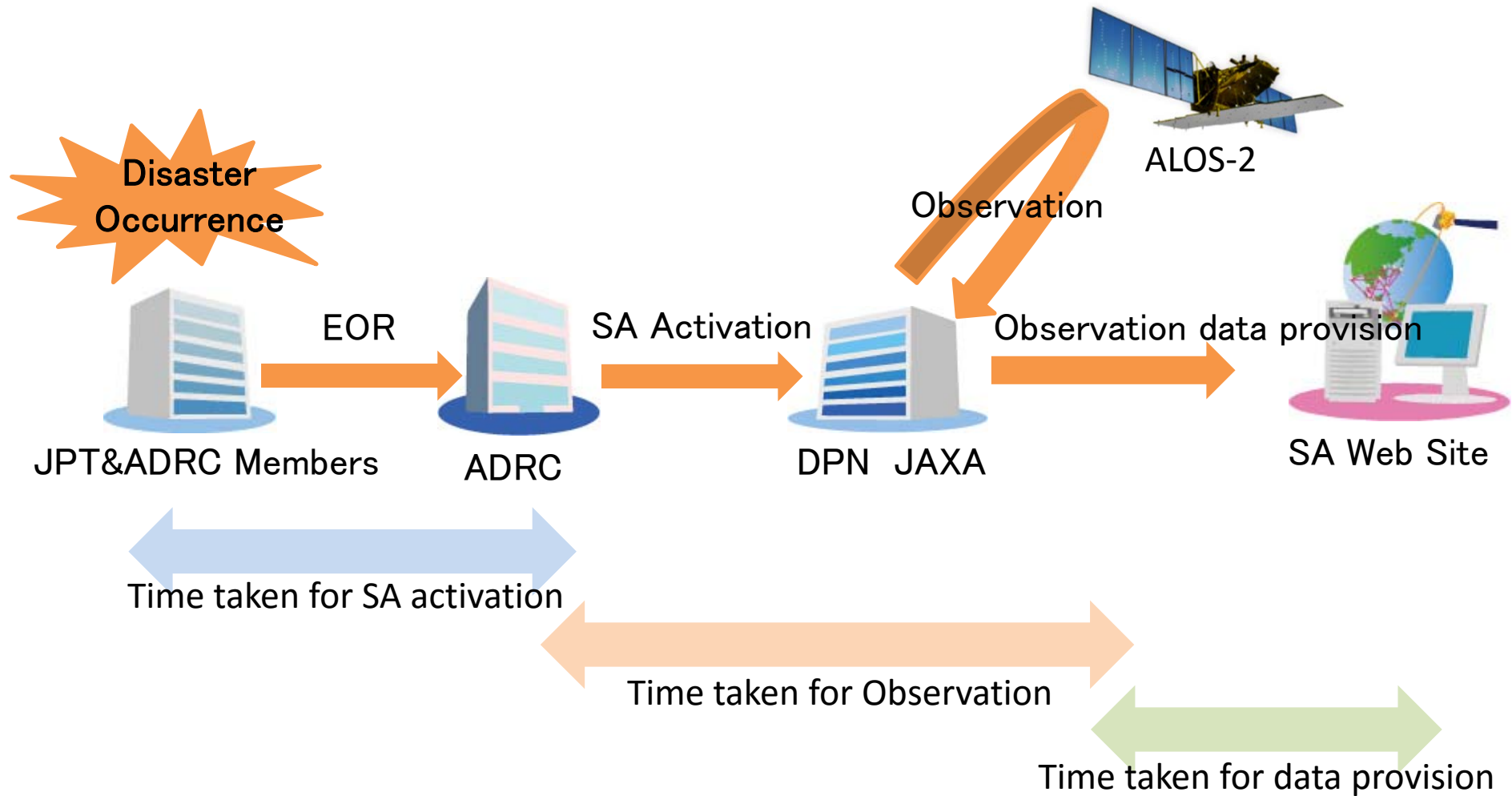
Water related disaster accounted for more than 75% of all disaster.

- Flood
- Typhoon
- Tropical cyclone
- Oil spills
- Storm surge

- Earthquake
- Flash flood
- Forest fire
- Cold wave
- Lahar flows

- Landslide
- Volcano eruption
- Tsunami
- Mudslide
- Search and Rescue of missing Boats

# Time taken for EO (in the case of JAXA as DPN)



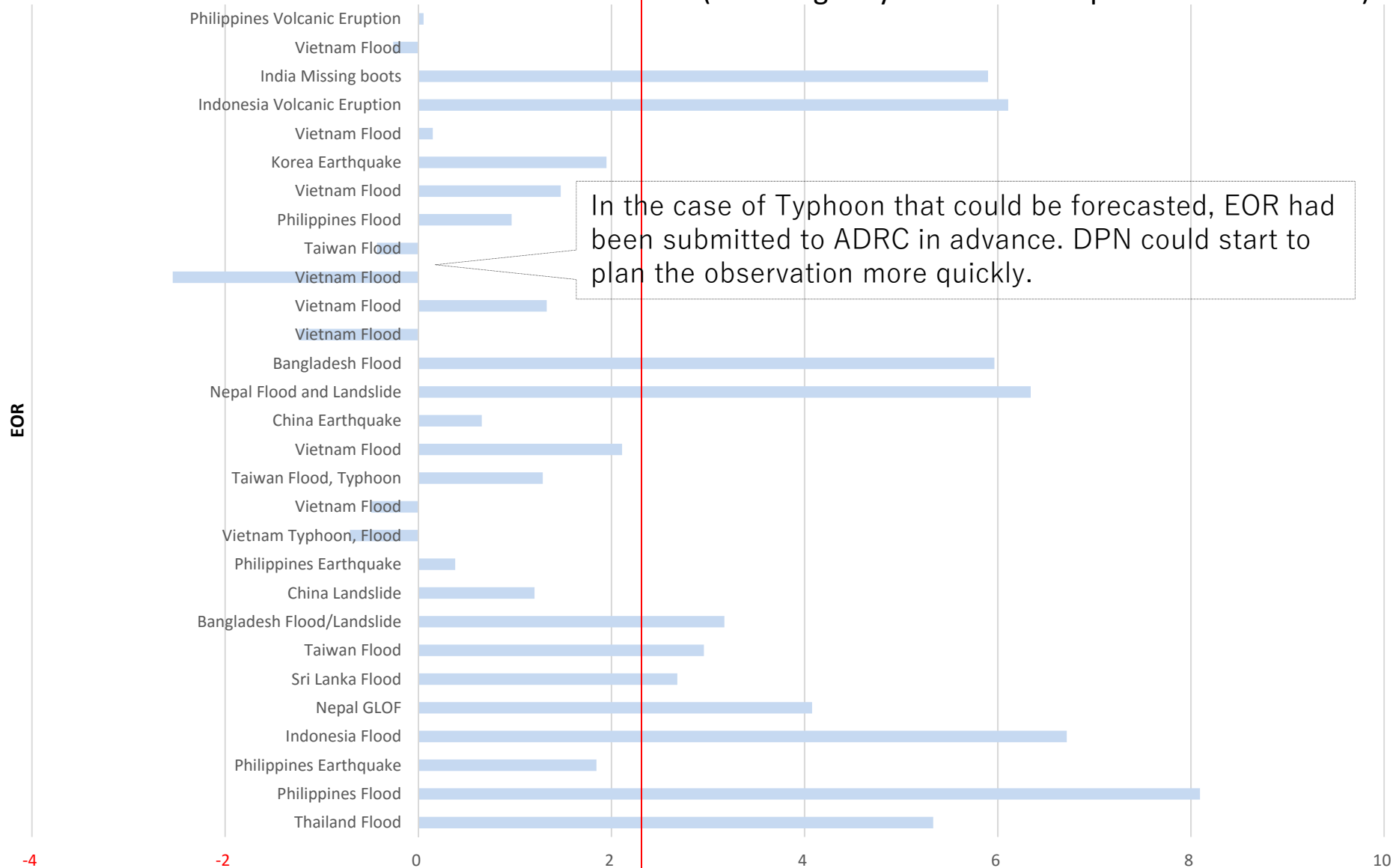
To shorten this time is helpful for disaster response activates.



# Time taken for SA activation after disaster occurrence in 2017



(including Mayon Volcanic Eruption of 15 Jan. 2018)

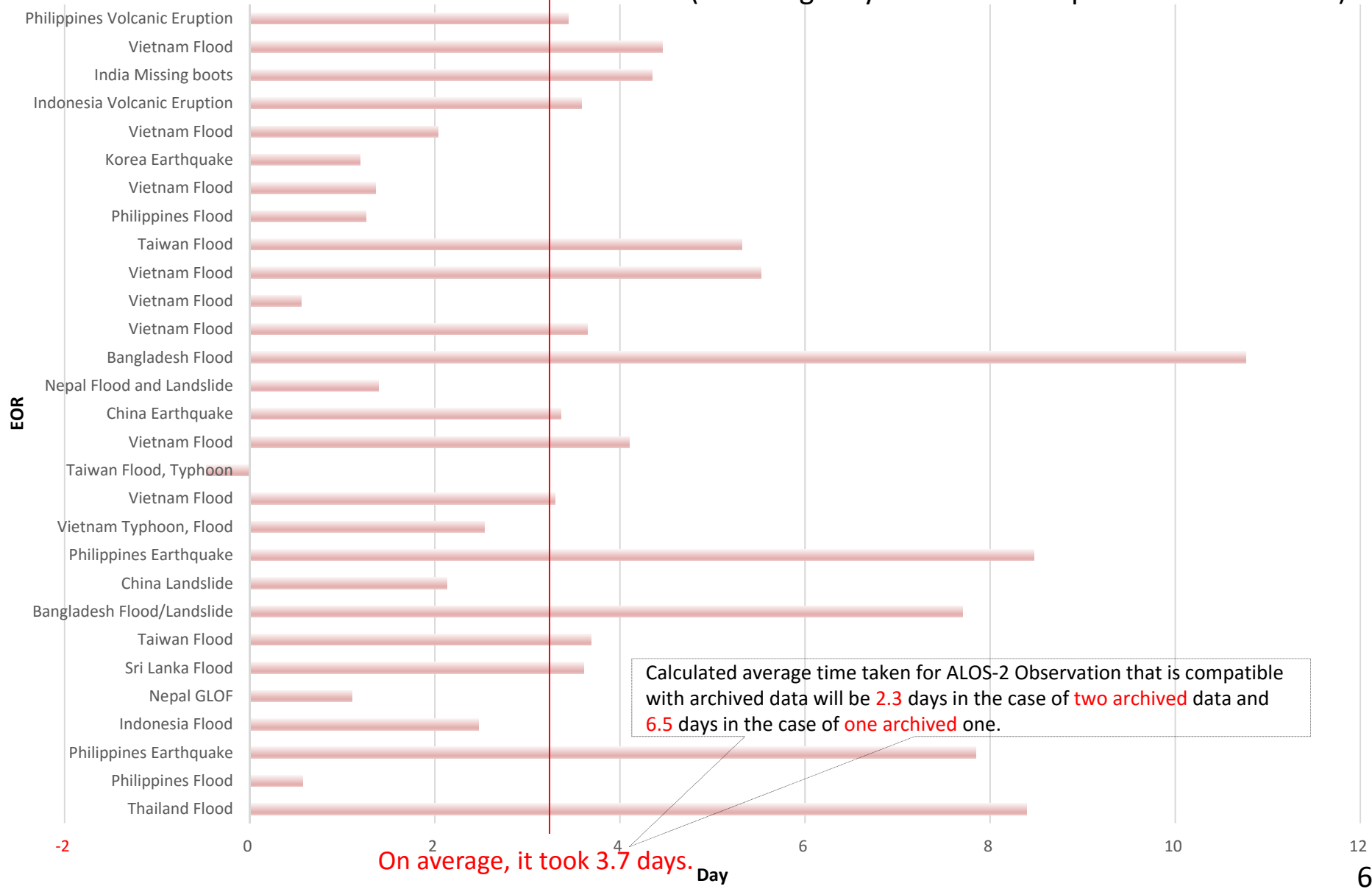


On average, it took 2.2 days. Day

# Time taken for ALOS-2 observation after SA activation in 2017



(including Mayon Volcanic Eruption of 15 Jan. 2018)



# Calculated Time taken for ALOS-2 observation compatible with the archived data after SA activation



【1】If there is ALOS-2 observation opportunity that is compatible with **one** archived data within 14(\*) days. In this case, the mean value of day until observation start will be **6.5** days. For example, if we start to plan observation on first day, we need to wait 13 days. If we start to plan observation on second day, we need to wait 12 days. If we start to plan observation on 13th day, we need to wait 1 day. Probability to select some day from 14 days is 1/14, therefore the mean value of starting observation can be calculated by  $13/14+12/14+11/14 \dots +2/14+1/14=6.5$  days.

(\*)This 14 days is the ALOS-2 revisit time.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
													A
S													

A:Archived data  
S:Start to plan Observation

【2】If there is ALOS-2 observation opportunity that is compatible with **two** archived data within 14 days. In this case, the mean value of day until observation start will be **2.3** days. If we start to plan observation on first day, we need to wait 7 days. If we start to plan observation on 9th day, we need to wait 5 days. Therefore the mean value of starting observation can be calculated by  $7/14+6/14 \dots +1/14+5/14+4/14+3/14+2/14+1/14=2.3$  days.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
							A						A
S								S					

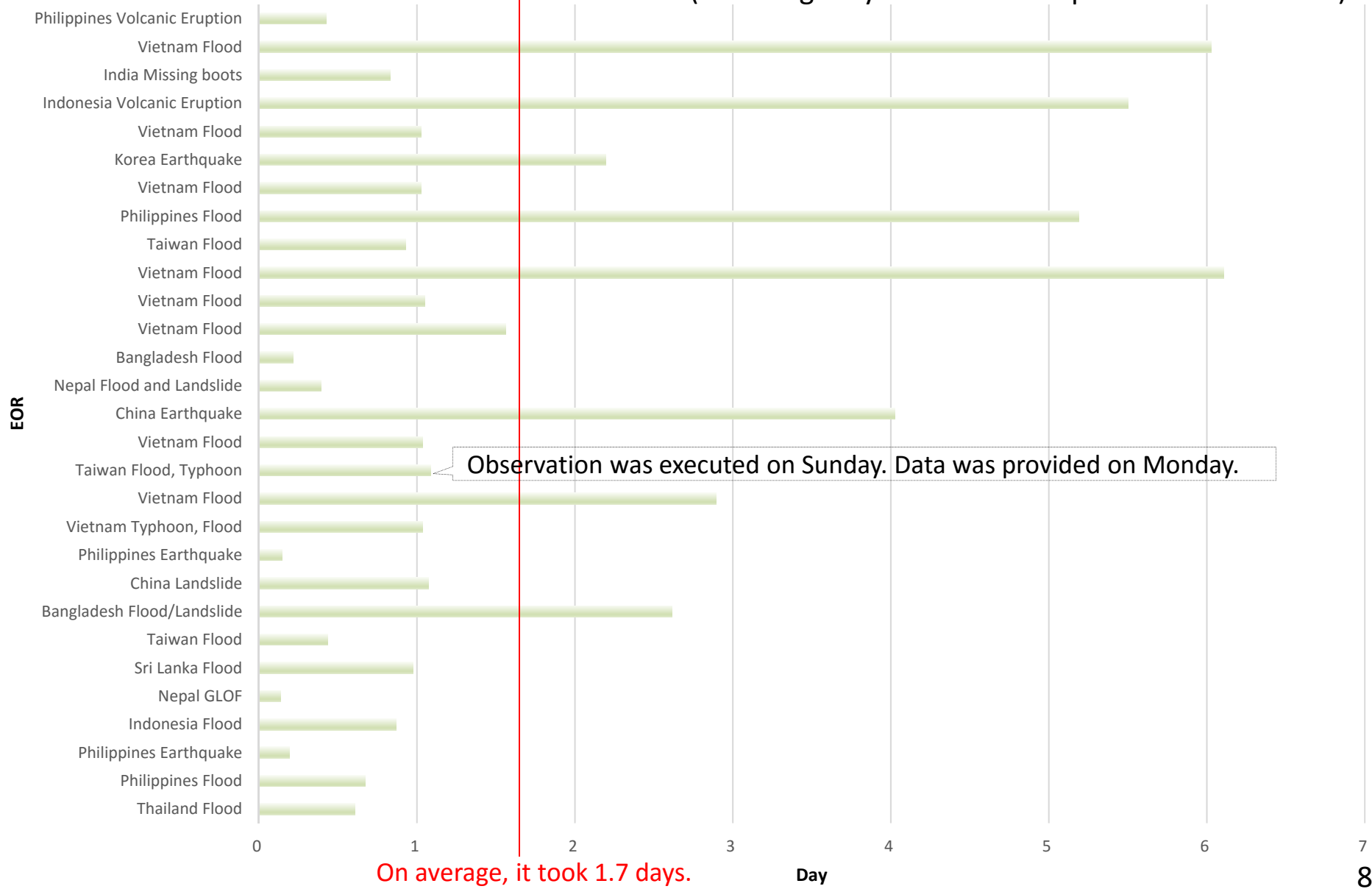
A:Archived data  
S:Start to plan Observation



# Time taken for ALOS-2 data provision after observation in 2017 (until after data are uploaded on SA Web site)



(including Mayon Volcanic Eruption of 15 Jan. 2018)

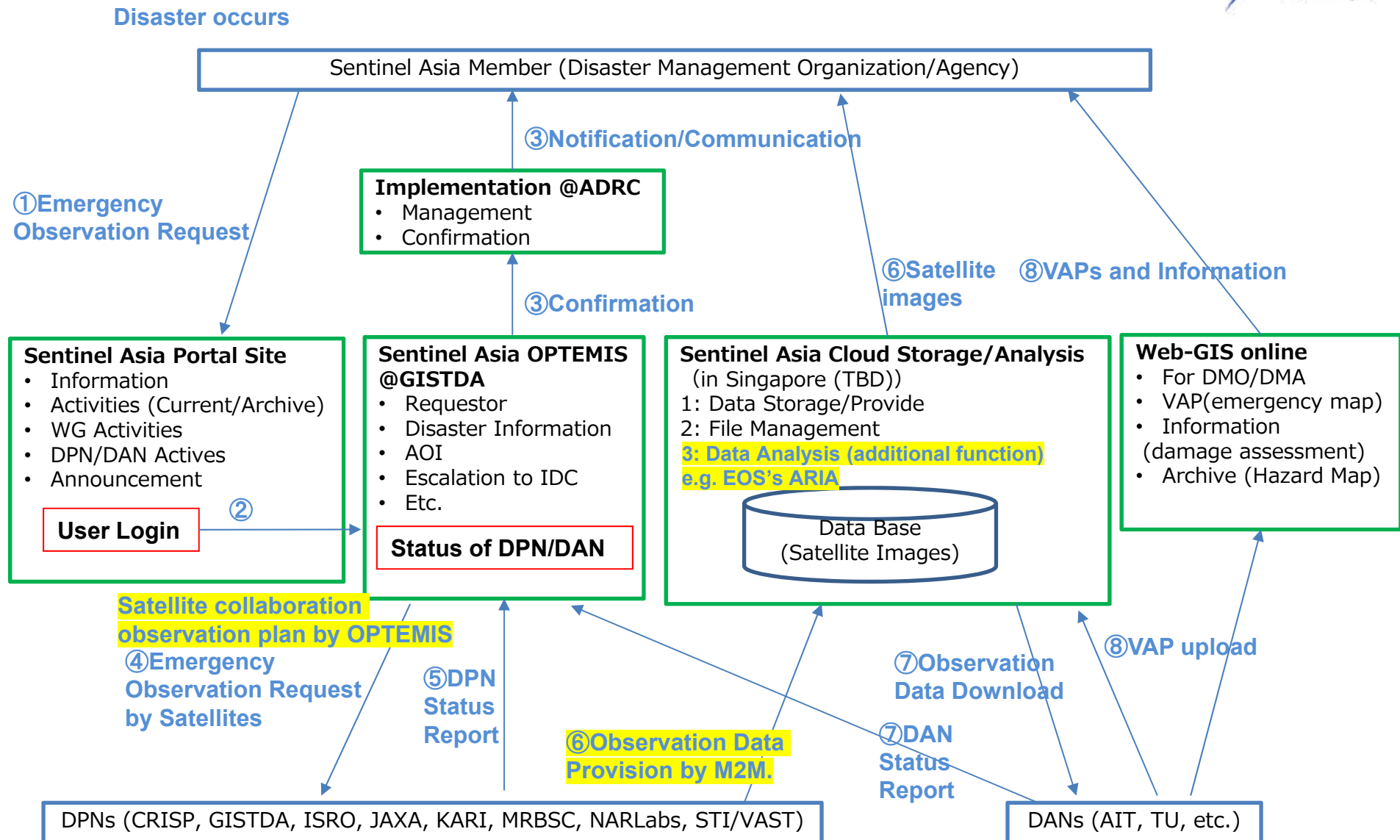


# To shorten time for disaster response activities



- Time taken for SA activation
  - JAXA has been regularly watching the precipitation amount of GSMaP and JMA's typhoon track forecast, in case that there seems to occur some disaster, JAXA has been asking you and your DMO to consider EOR. In 2017, EORs related to typhoon are getting to be submitted in advance.
- Time taken for Observation
  - The average 3.7 days by one ALOS-2 observation could not be much shortened. But if DPNs' satellite collaboration is realized, it could shorten this time to compliment each observation. The observation plan by this satellite collaboration could be realized by OPTEMIS provided by GISTDA. This OPTEMIS will work on the next SA cloud-computing system.
- Time taken for Data Provision
  - It takes the average 1.7 days (41 hours) to provide data. Because data are uploaded on SA Web site by man operation. This data provision way must be changed to be done by Machine to Machine. In the case of JAXA, ALOS-2 data could be provided within ca. 4 hours after observation. This data provision time could be reduced 41 hours to ca. 4 hours in the next SA cloud-computing system. We could start to analyze the observation data every time, regardless of the day and night and day of the week and holiday. DAN, good luck with your work.

# Image of Next Sentinel Asia system



OPTEMIS: Operation Planning for Thailand Earth observation MISsion

Finally DPNs want to know the real examples of how the provided data were used for your disaster response activities. Your feedbacks make Sentinel Asia better.

**Thank you for your attention!**