

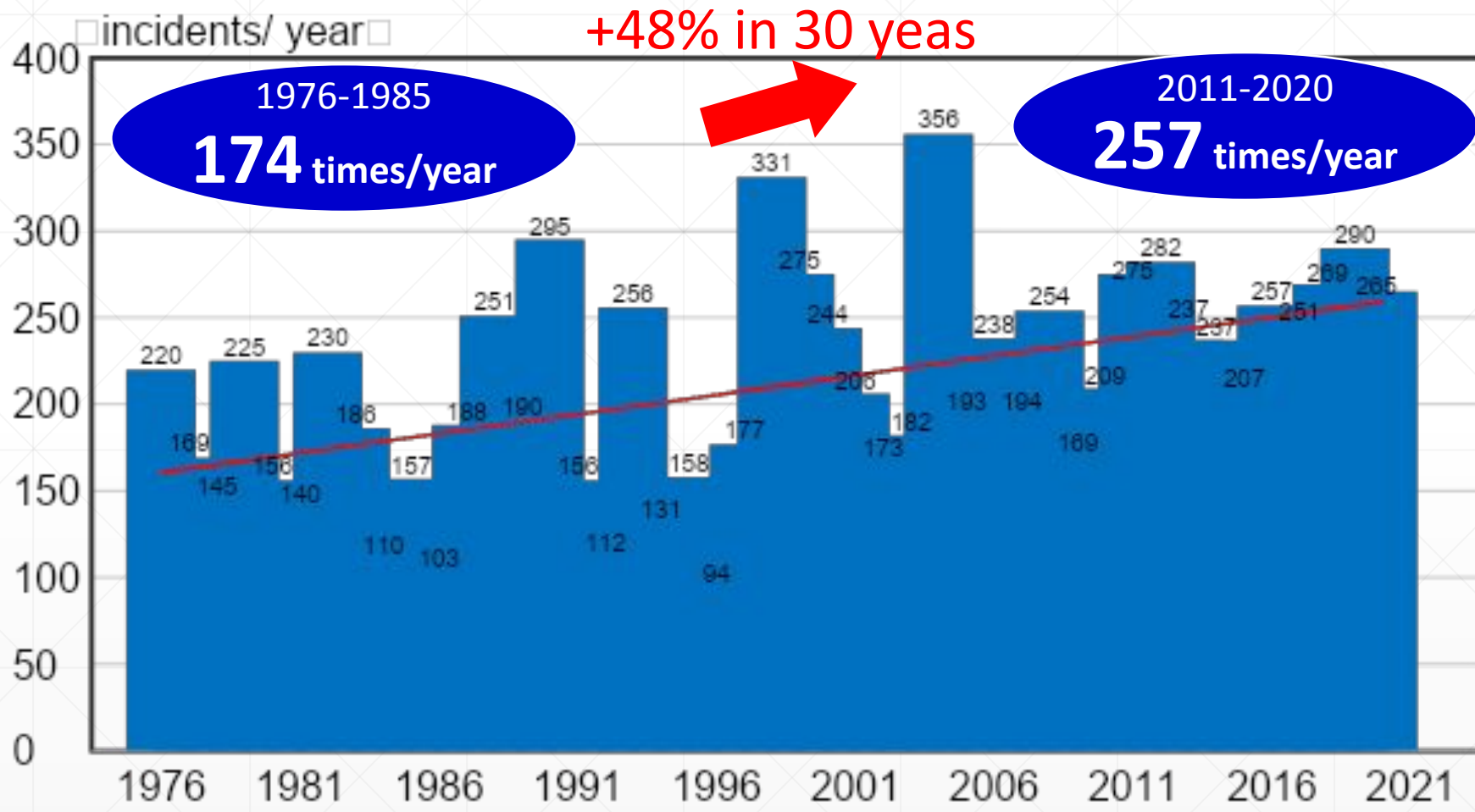


Good practice to establish a comprehensive, integrated river information management system in JAPAN

**Kazumitsu MURAOKA: JICA advisor to Bangladesh Water Development Board
INBO World General Assembly
9th October, 2024**

Background

- The frequency of short duration heavy rainfall (over 50 mm/hour) has increased by about 1.4 times in 30 years.
- To keep the human's life, the transparency of the data related water disaster has become increasing important.



Annual frequency of hourly precipitation over 50mm (per 1,000 AMeDAS stations)

- Addition of previous year's data is in January each year
- There were originally around 800 AMeDAS stations in 1976. The number increased to about 1,300 in 2016. To remove the effect of the difference in the number of stations between years, the comparison is made after conversion to frequency per 1,000 stations.
- Excludes radio-robotic rain gauge stations that were used in mountainous areas but later removed.

The Integrated River Information System in JAPAN

- The system has been developing since July 2001.
- Using WEB map-based platform □ Visualize all the phenomena from wide area to local community.

国土交通省
川の防災情報

観測所検索 操作説明

全国 2024/10/04 12:42

【ご注意】川の防災情報における取り扱い上の注意について

発表情報概況

洪水予報等 ダム放流通知

嶮淵川 情報解除 09/27 11:20

基準値超過観測所一覧

水位観測 雨量 水位計

宇都山 若山川(北陸その他水系)

観測所種別

- 水位観測
- 水位計
- ダム諸量
- 雨量
- 水質
- 海岸
- 積雪深
- 河川カメラ

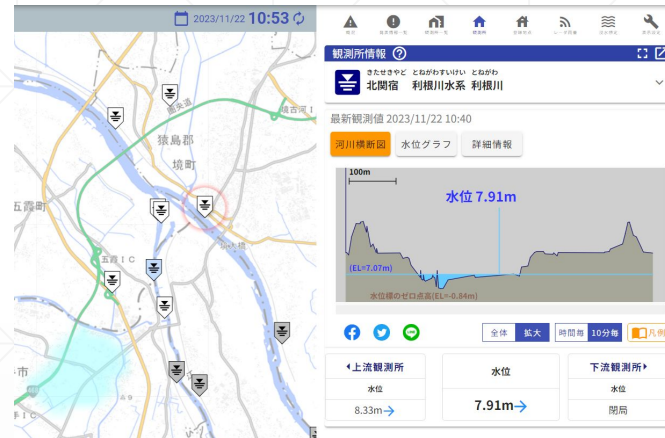
1/10

凡例 モバイルモード 表示切替

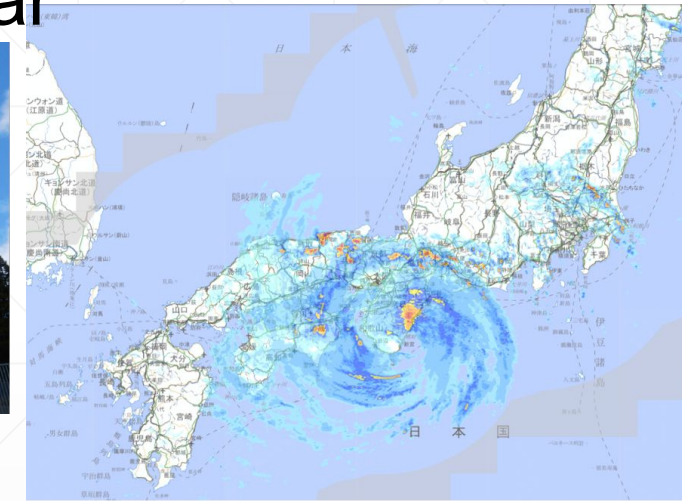
Provide the various information on unified platform

- All the water related information are gathered to the unified platform.
- Most data are updated every 10 minutes. Especially, the Rada data is updated every minute.
- The data comes from many different institutes.

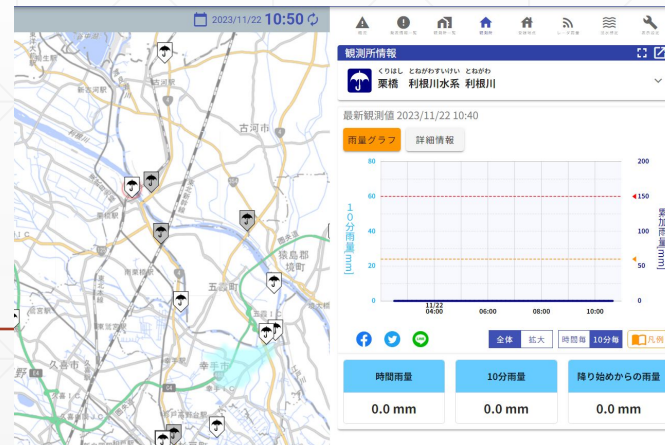
River Water Level



Rainfall by Radar



Precipitation



Camera image



Provide the various information on unified platform

- Not only the hydro-met data but also the risk information, warning announcement from the government are available. Local people can understand the risk information immediately.
- Quick decision making and quick response can be done by themselves.

The screenshot displays a web interface for flood information in Shizuoka Prefecture. The main map shows the Sagami River basin with various data points and a purple outline indicating a specific area of concern. The right-hand panel provides detailed information for the 'Kawaguchi River' (かのがわ) system, specifically the 'Kiwakawa River' (きせがわ) at 'Kiwakawa' (黄瀬川). It reports a 'Level 4 equivalent flood warning' (第3号 氾濫危険情報 Lv.4相当) issued on 2023/06/02 at 19:50. The panel also shows the current water level at the 'Honjyuku' (本宿) gauge is 4.20m, which has exceeded the 'Level 4 equivalent flood warning water level' (氾濫危険水位超過 Lv.4水位). The text further explains that this is a warning for evacuation and that residents should confirm evacuation information and take necessary safety measures.

国土交通省
川の防災情報

静岡県

2023/06/02 21:36

国土交通省所管の簡易型河川監視カメラのメンテナンスについて

水位到達情報

かのがわ 黄瀬川

発表状況

第3号 氾濫危険情報 Lv.4相当
2023/06/02 19:50

関連情報

基準観測所 (06/02 19:50時点の観測値)

本宿 (ほんじゅく) 【駿東郡長泉町】
水位 4.20m 氾濫危険水位超過 Lv.4水位

関連市町村

【静岡県】
沼津市 駿東郡清水町 駿東郡長泉町

発表文

【警戒レベル4相当情報 [洪水]】これは、避難指示の発令の目安です。黄瀬川の本宿水位観測所 (駿東郡長泉町)では、2日19時50分頃に、氾濫危険水位 (4.20m) に到達しました。

市町村からの避難情報を確認するとともに、各自安全確保を図るなど、適切な防災行動をとって下さい。

発表号数

観測所種別

- 水位観測
- 水位計
- ダム諸量
- 雨量
- 水質
- 海岸
- 積雪深
- 河川カメラ

1/10

Provide the various information on unified platform

- Dam information also available every 10 minutes update.
- Not only inflow, outflow, but also the warning message from dam operation office to the local residences.

Hijikawa River

Camera image (Real time)

鹿野川水系 鹿野川ダム

愛媛県大洲市肱川町 ダム上流直上

Onaru

Yokubaru

Kobun

国土交通省 川の防災情報

かのがわだむ 鹿野川ダム ひじかわすいけい 肱川水系 ひじかわ 肱川

■最新観測値 2024/10/04 15:20 ※「治水容量」などの表示に向けて、プログラムの改修中のため、現在の貯水位を参考にして下さい

貯水位: 76.36m 貯水量: 12377.00千m³ 全流入量: 21.48m³/s 全放流量: 9.89m³/s 貯水率治水容量: -- % 貯水率有効容量: 34.2% 貯水率利水容量: 68.4% 時間雨量: 0.0mm 10分雨量: 0.0mm

ダム諸量グラフ

貯水位 (m)

全放流量 (m³/s)

10/04 08:00 10:00 12:00 14:00

ダム模式図

現在の貯水位 76.36m

緊急放流(異常洪水時防災操作)判断水位: 87.50m

洪水時最高水位: 89.00m

全放流量: 9.89m³/s

貯水率(利水容量): 68.4%

最低水位: 66.50m

鹿野川ダム流域(流域平均)
10分雨量: 0.0mm
降り始めからの雨量: 35.5mm

全流入量: 21.48m³/s

洪水貯留準備水位: 80.00m (適用期間: 06/16~10/15)

予備放流水位: 76.30m (適用期間: 01/01~12/31)

※この図は模式図であり、実際のダムの形状とは異なります

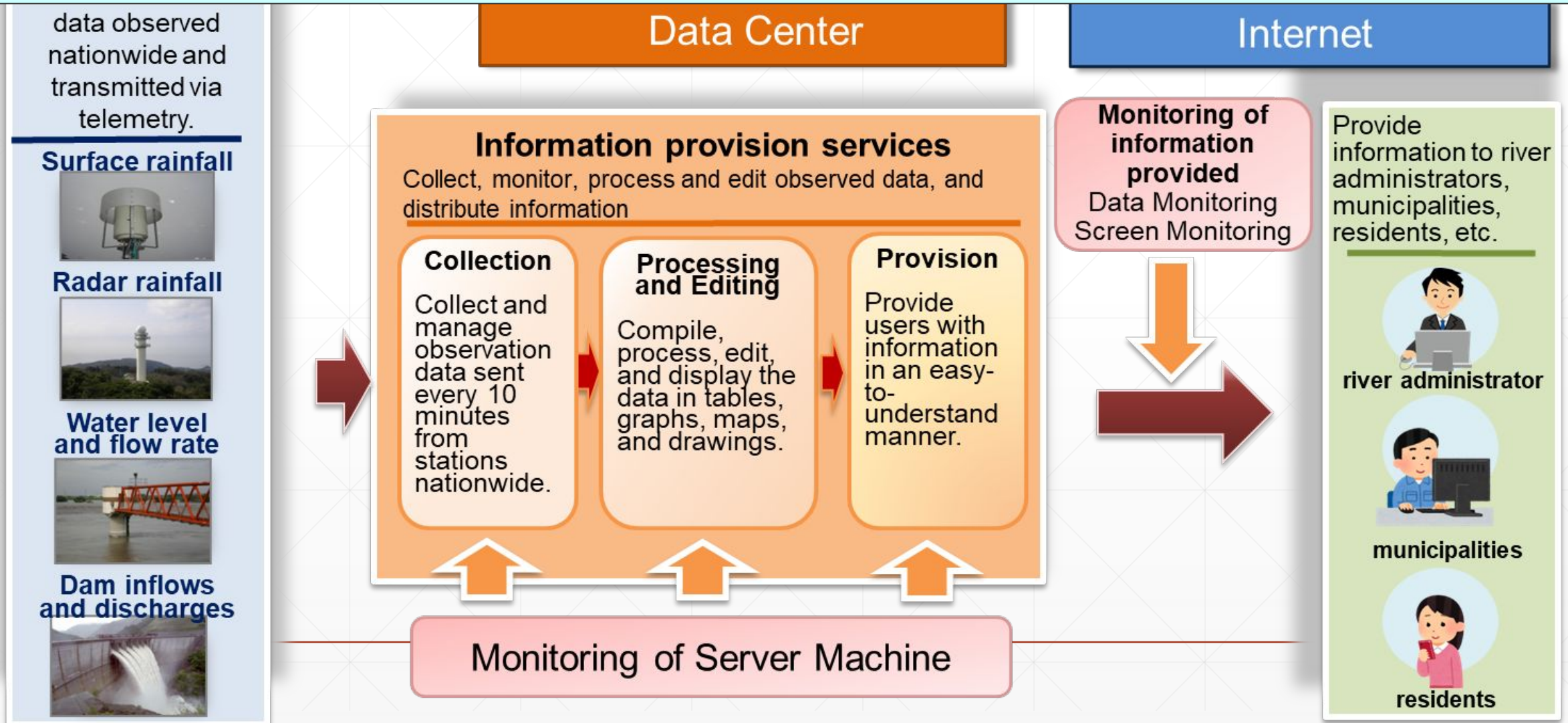
観測値一覧

日付	時刻	貯水位[m]	貯水量[千m ³]	貯水率利水容量[%]	貯水率有効容量[%]	貯水率治水容量[%]	全流入量[m ³ /s]	全放流量[m ³ /s]	10分雨量[mm]	降り始めからの雨量[mm]
10/04	15:20	76.36	12377.00	68.4	34.2	--	21.48	9.89	0.0	--
	15:10	76.36	12377.00	68.4	34.2	--	21.58	9.94	0.0	--
	15:00	76.36	12377.00	68.4	34.2	--	22.36	11.88	0.0	35.5
	14:50	76.36	12377.00	68.4	34.2	--	28.69	14.55	0.0	--

コピー 印刷 過去一週間

Management the operation of the system

- River information is collected, processed, and compiled in real time (24h/7days) and provided to river administrators, municipalities, and residents.
- The information distributed through the Internet is also constantly monitored.

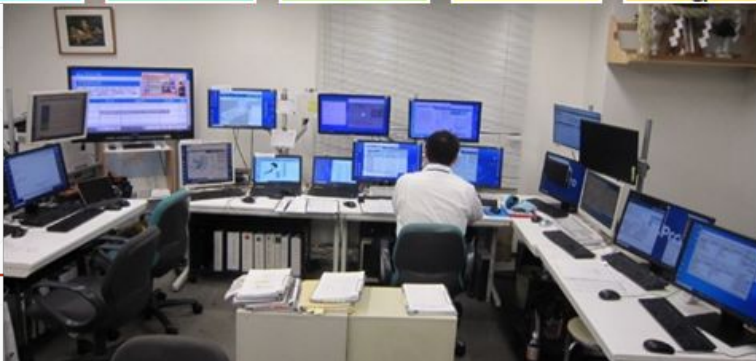
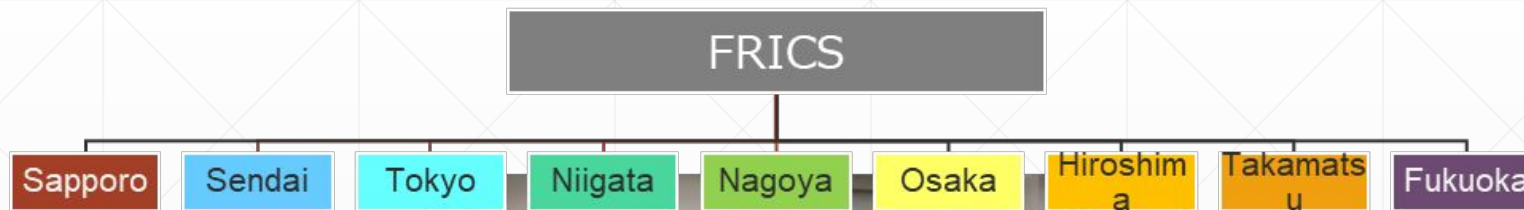


Management the operation of the system

Data is monitored 24-hour by a full-time staff

Monitoring Methods

- Divide the country to 9 regional centers
- 24 hours a day, 7 days a week, 365 days a year
- Use tools to monitor all hourly data
- Compare data from the previous time and neighboring stations to extract anomalous values



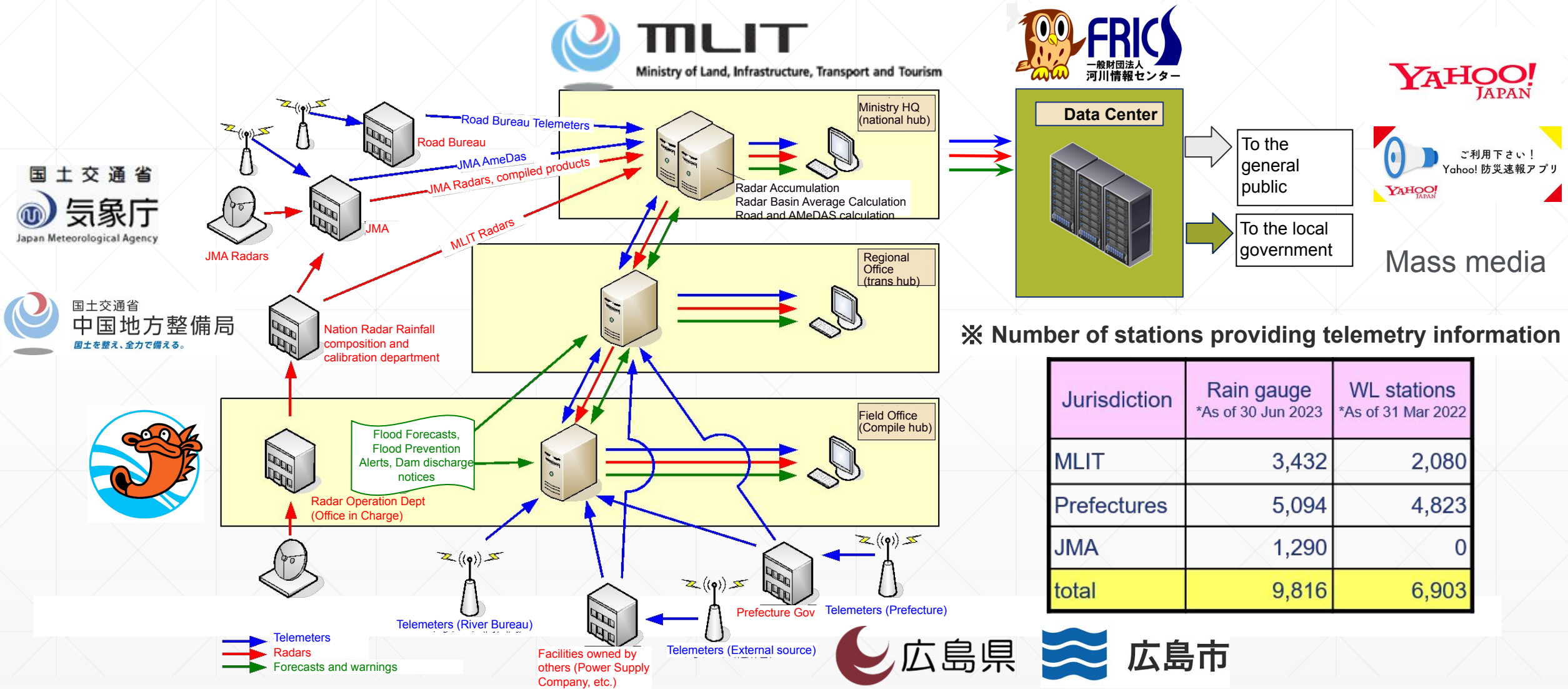
Data Monitoring as of 30 Jun 2023 Number of Monitored Stations

Type	No. of Stations	Type	No. of Stations	Type	No. of Stations
Rainfall	7,459	Dam	666	Weir	53
Water Level	6,879	Coast	79	Pumping St.	334
Water Quality	210	Snow	97	Weather	30
Total	15,807				



Cooperation between different institutions

- Real-time viewing of nationwide information is made accessible by hierarchically consolidating information collected by offices of regional development bureaus and national hub stations, and further transmitted to the datacenter.

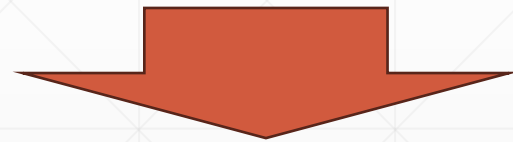


※ Number of stations providing telemetry information

Jurisdiction	Rain gauge *As of 30 Jun 2023	WL stations *As of 31 Mar 2022
MLIT	3,432	2,080
Prefectures	5,094	4,823
JMA	1,290	0
total	9,816	6,903

Challenge and solutions through the development the comprehensive system

- Strong leadership institution or organization.
- Cooperation between different organization.
- Sustainable management and maintenance.



**What is the difficulty of data transparency in your country?
How can we implement for the TRANSBOUNDARY RIVER BASIN?**

Conclusion

- **Comprehensive and integrated river information system is necessary** for the future climate change adaptation.
- Discussion is necessary **how we can implement to country which has transboundary rivers.** (ex. Bangladesh)
- Discussion is necessary **how we cooperate between different organizations.**



English site available
<https://www.river.go.jp/e/>

