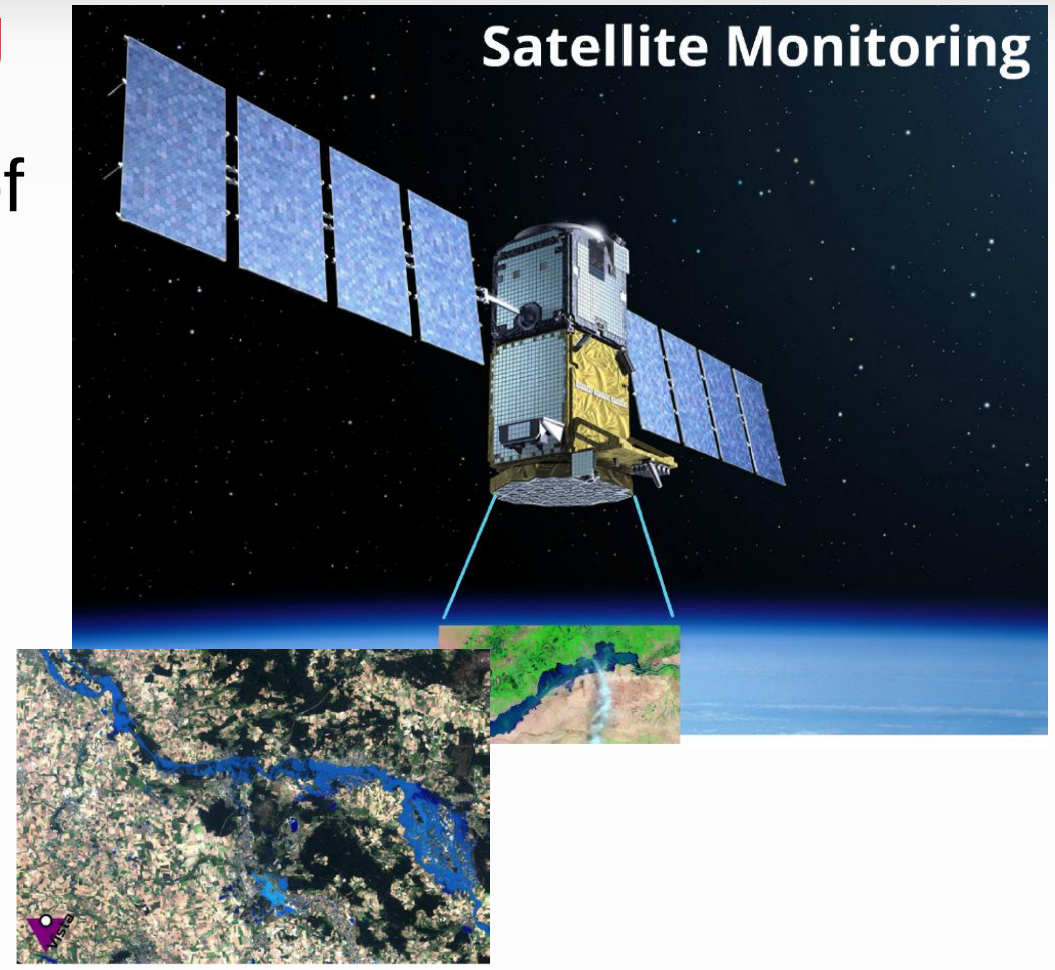
St.Petersburg Institute for Informatics and Automation
of the Russian Academy of Sciences

MULTIDISCIPLINARY APPROACH TO FLOOD FORECASTING ON THE BASE OF EARTH OBSERVATION DATA AND HYDROLOGICAL MODELLING

Existing methodologies and tools

1. Satellite monitoring

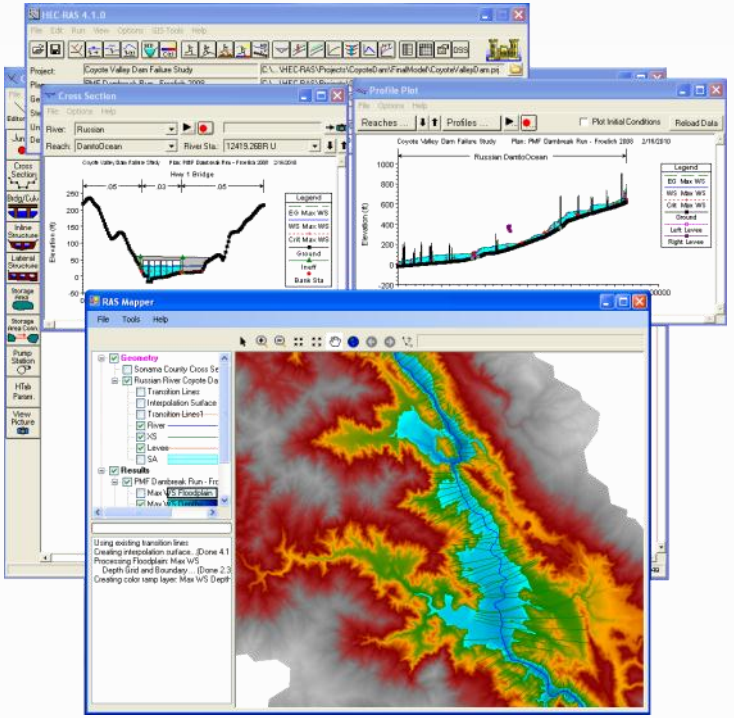
- post-event fixation of the flooding fact
- post-event damage analysis
- subjective forecasts by experts



Existing methodologies and tools

2. Long-range forecast

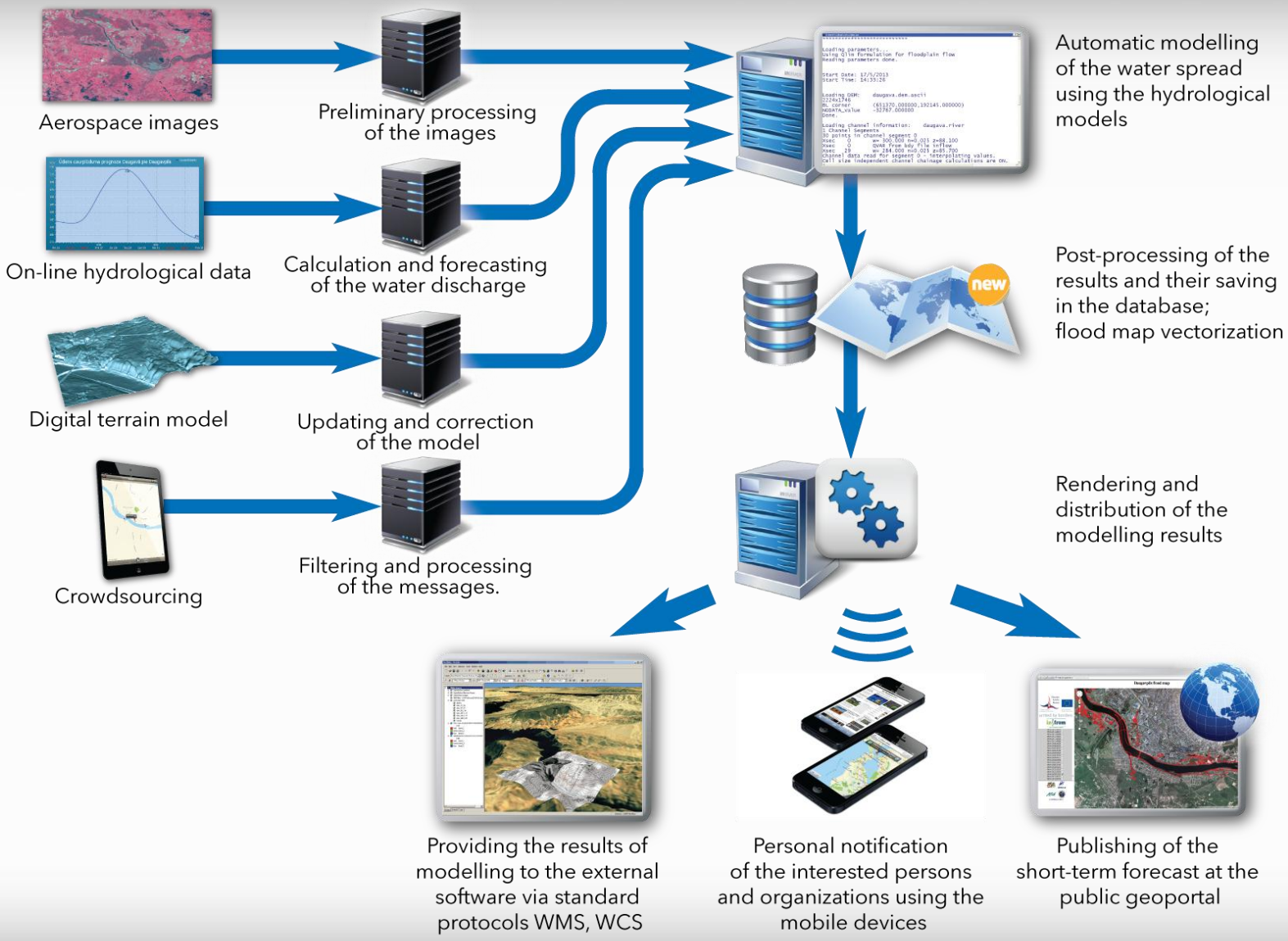
- modeling based on weather forecasts, snow cover, riverbed profiles, soil types, etc.
- greater complexity, low reliability of initial data



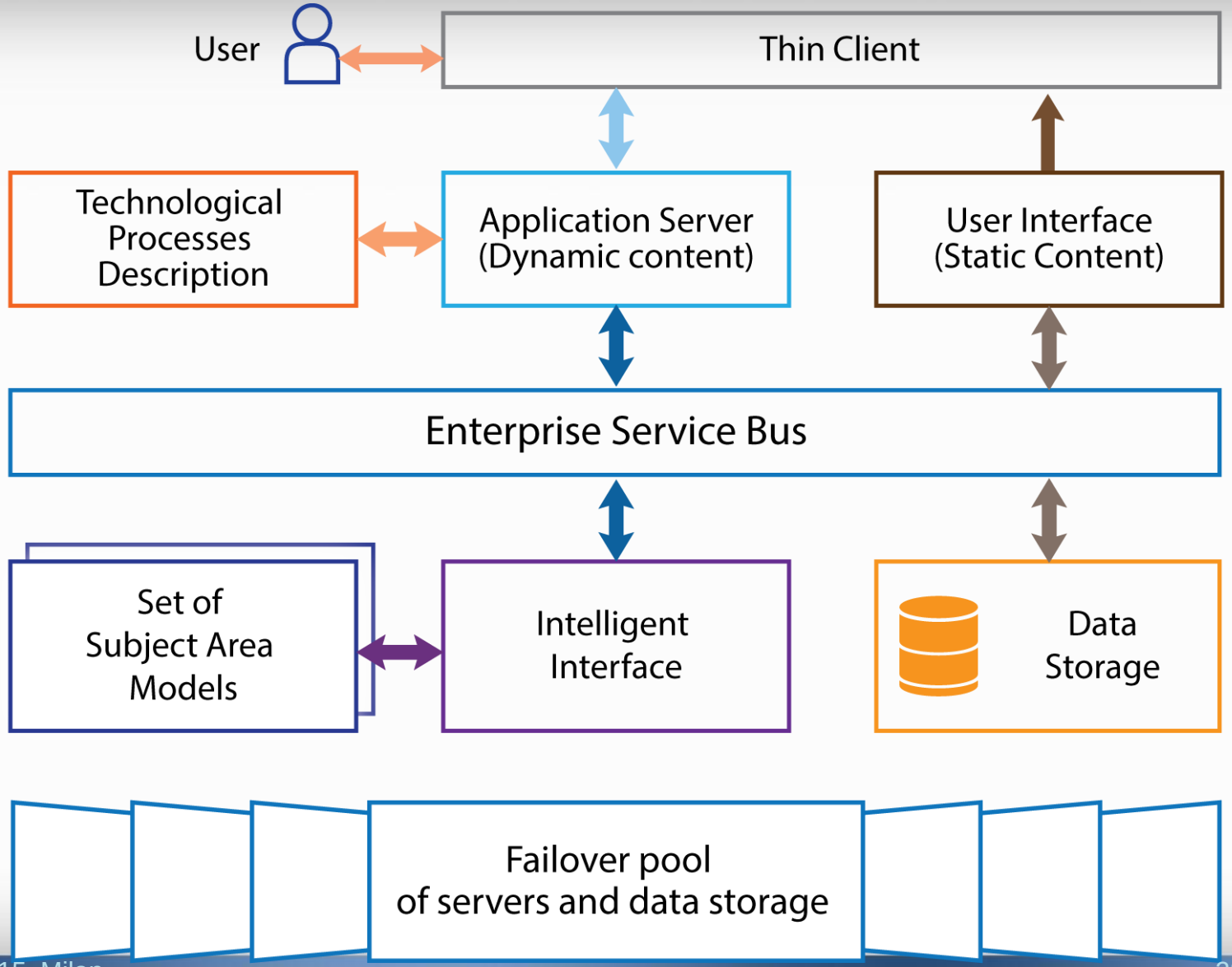
Basic direction

Operational Forecast based on integrated use of heterogeneous data

Floods operational forecasting system implementation



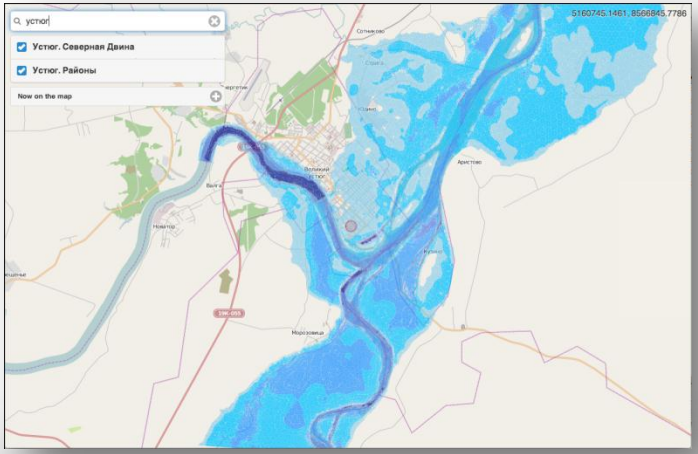
Software


User
Thin Client
Technological Processes Description
Application Server (Dynamic content)
User Interface (Static Content)
Enterprise Service Bus
Set of Subject Area Models
Intelligent Interface
Data Storage
Failover pool of servers and data storage

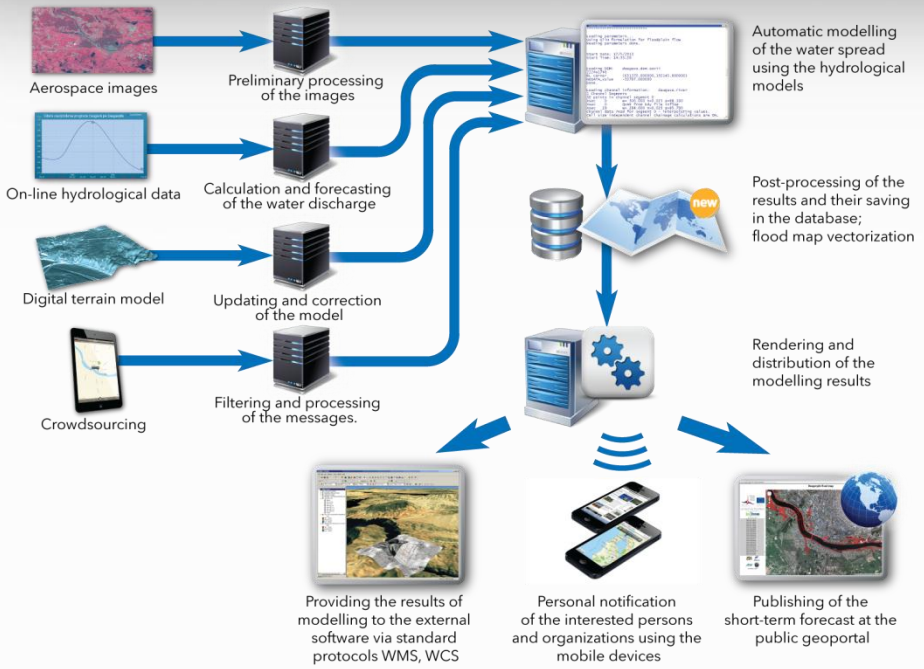
RegionView - Information-analytical system to support activity on the territory

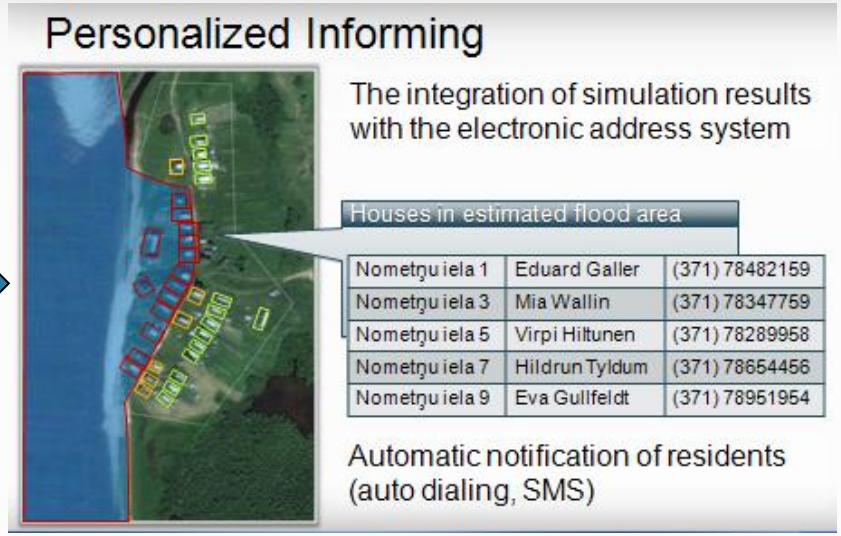
All complexity is hidden within the system

User has only one search box!

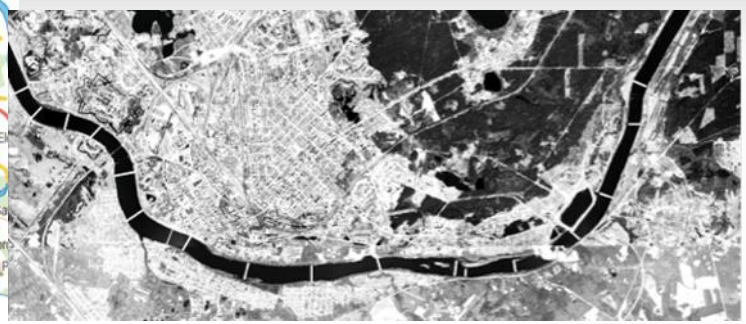


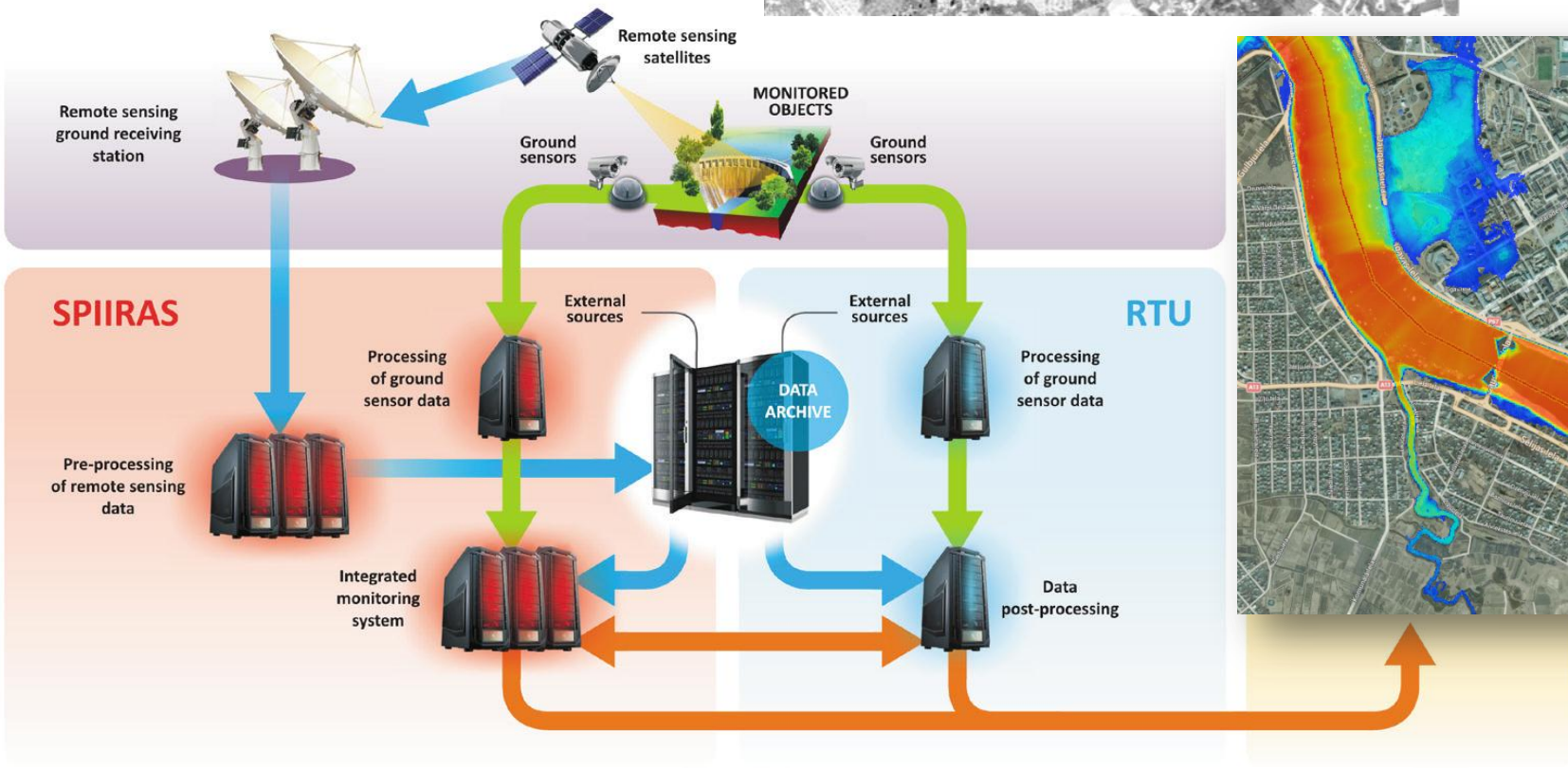
Stakeholders notification

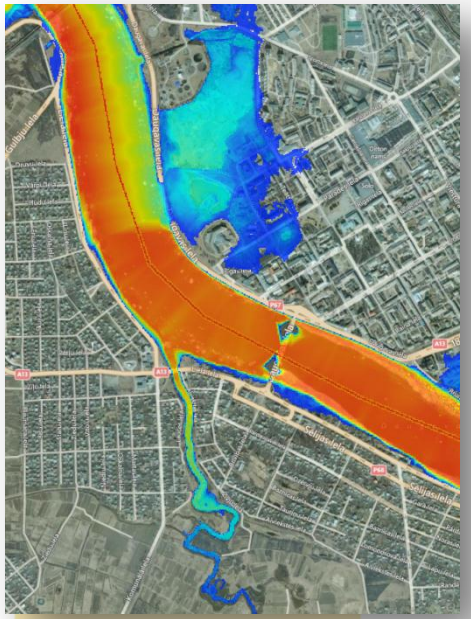




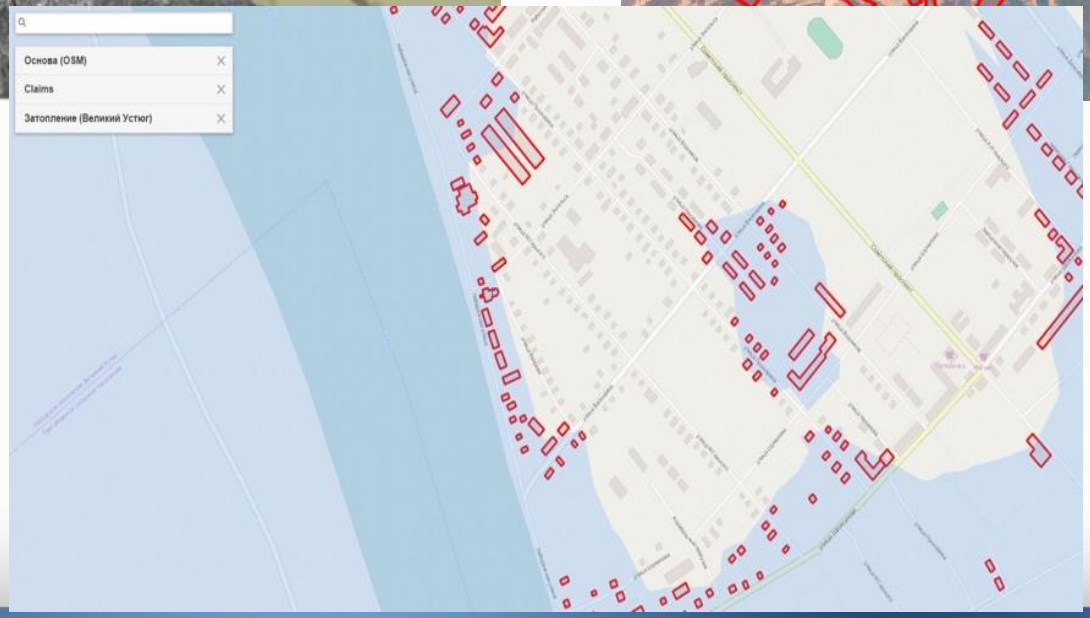
Case study: Flood monitoring and forecasting in Latvia (Project ELRI-184)



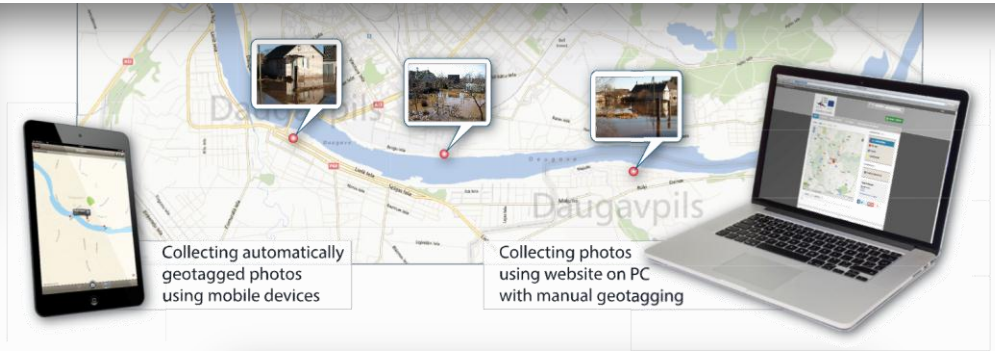


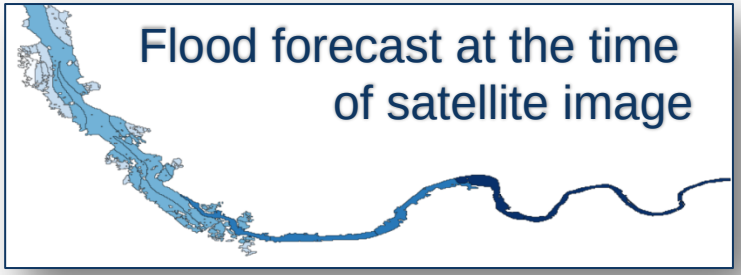


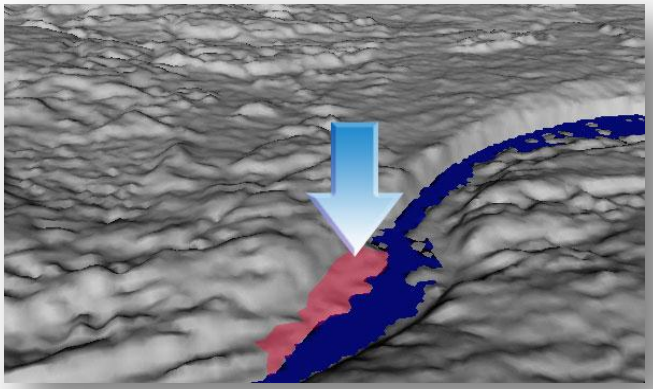
Case study: Flood monitoring and forecasting in Russia, r. Oka and r. Malaya Severnaya Dvina



Verification and input data correction

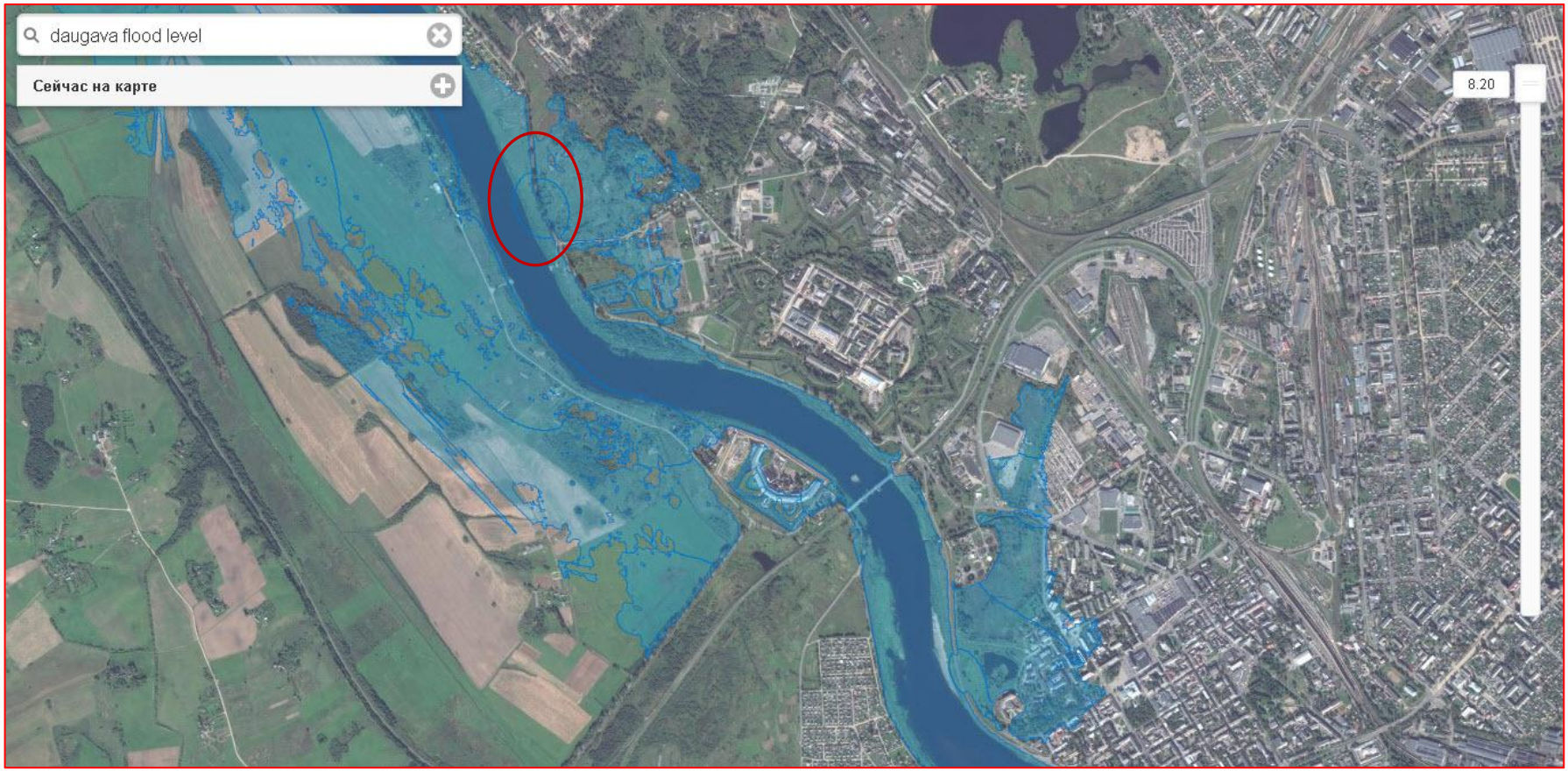






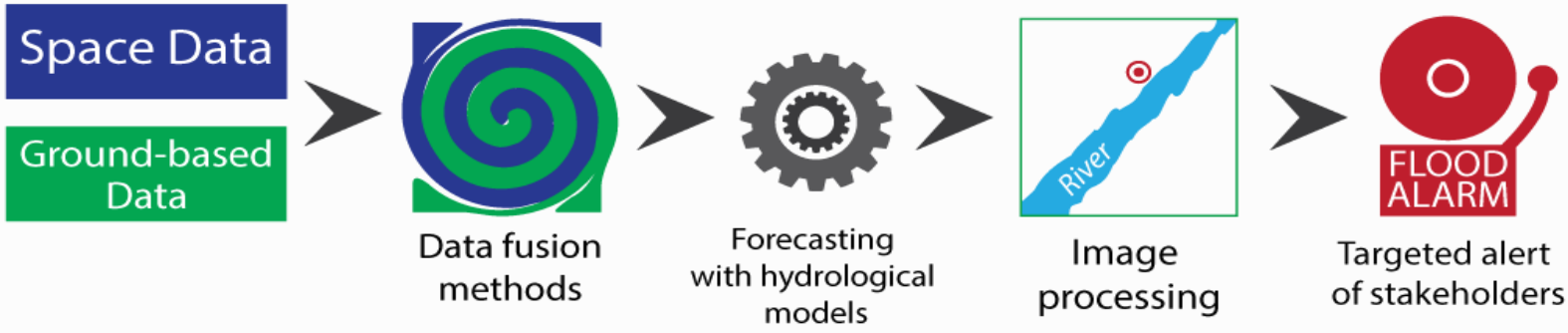
Hourly forecast of inundated areas

Analysis of possible inundation areas



Main advantages

- Acceptable accuracy on the basis of *available space-ground data*
- Advance forecasting of the time and depth of flooding in *each specific* place
- *Timely warning* of persons and emergency services
- *Automatic* mode
- *User-friendly*



We are open to cooperation!

SPIIRAS Location

Thank you for your attention!

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