DEPARTMENT OF INFORMATION TECHNOLOGY

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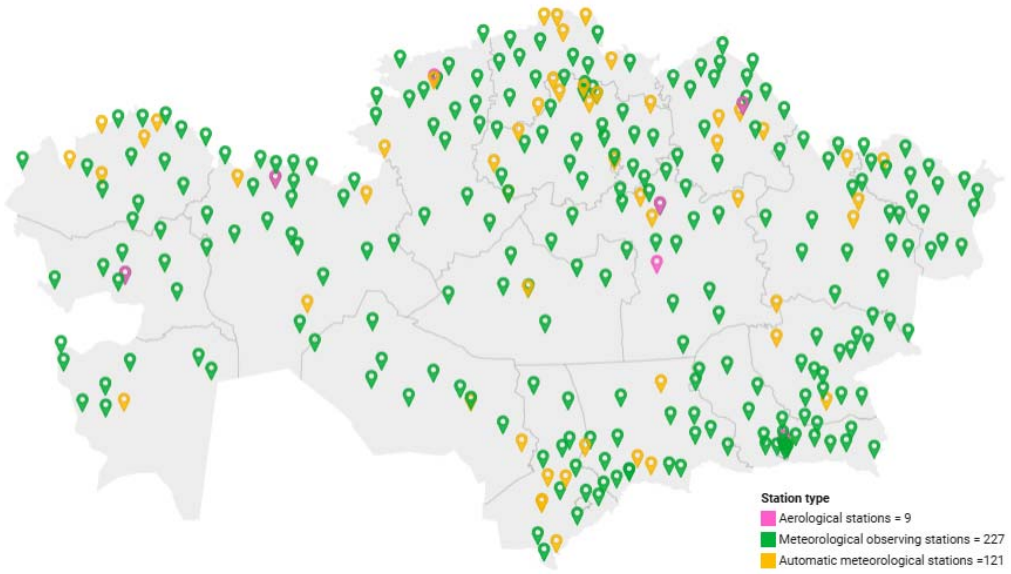
HEAD OF INFORMATION DISSEMINATION DIVISION

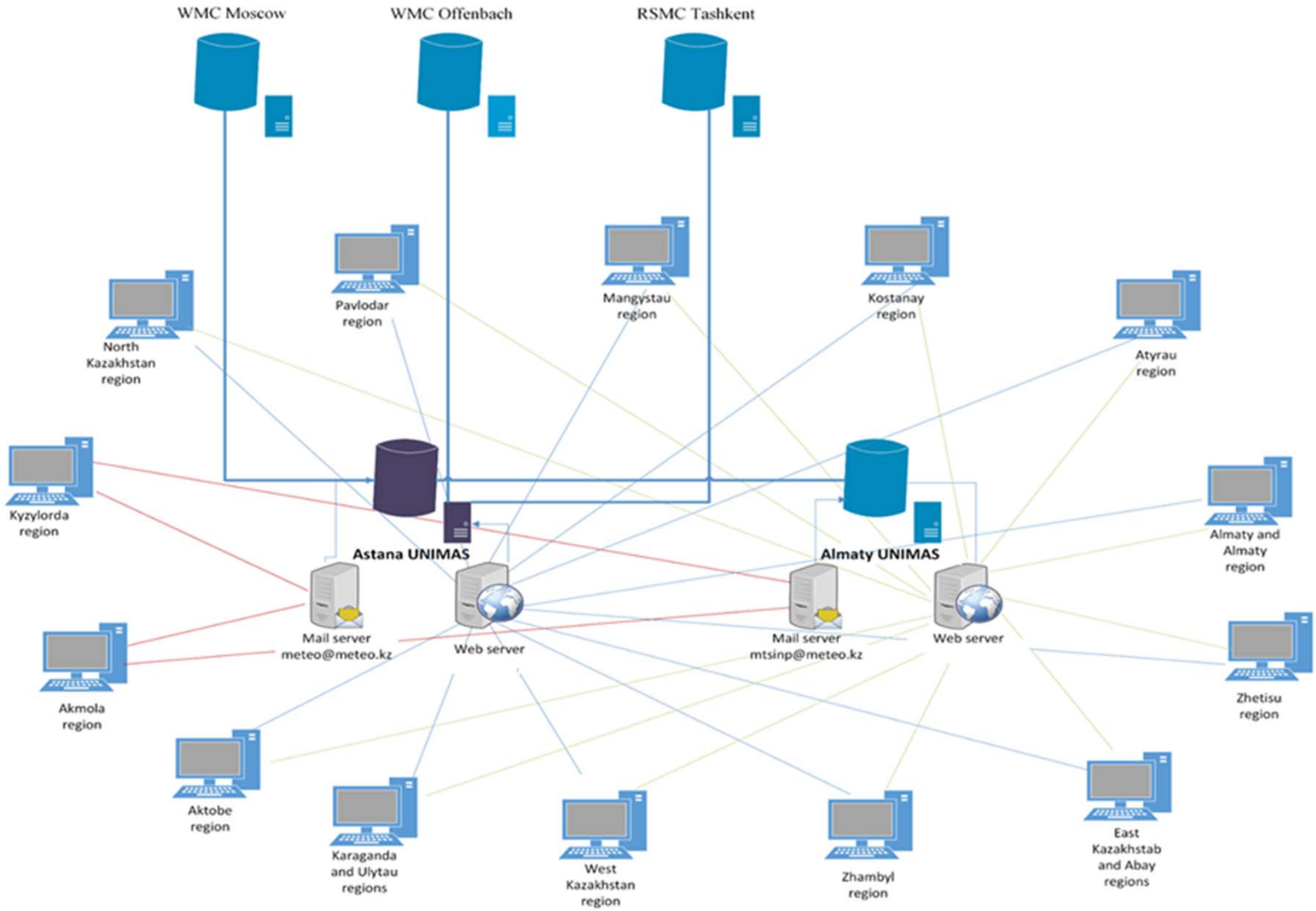
Observation Network

- RSE Kazhydromet collects and processes various types of hydrometeorological information from its national observation network which includes a total of **822 observation stations.**
- **241 meteorological** stations, including **21 automated stations (AMS),** transmit data to the international exchange.
- **50 AMS** forming part of the **GBON** network provide hourly updates.

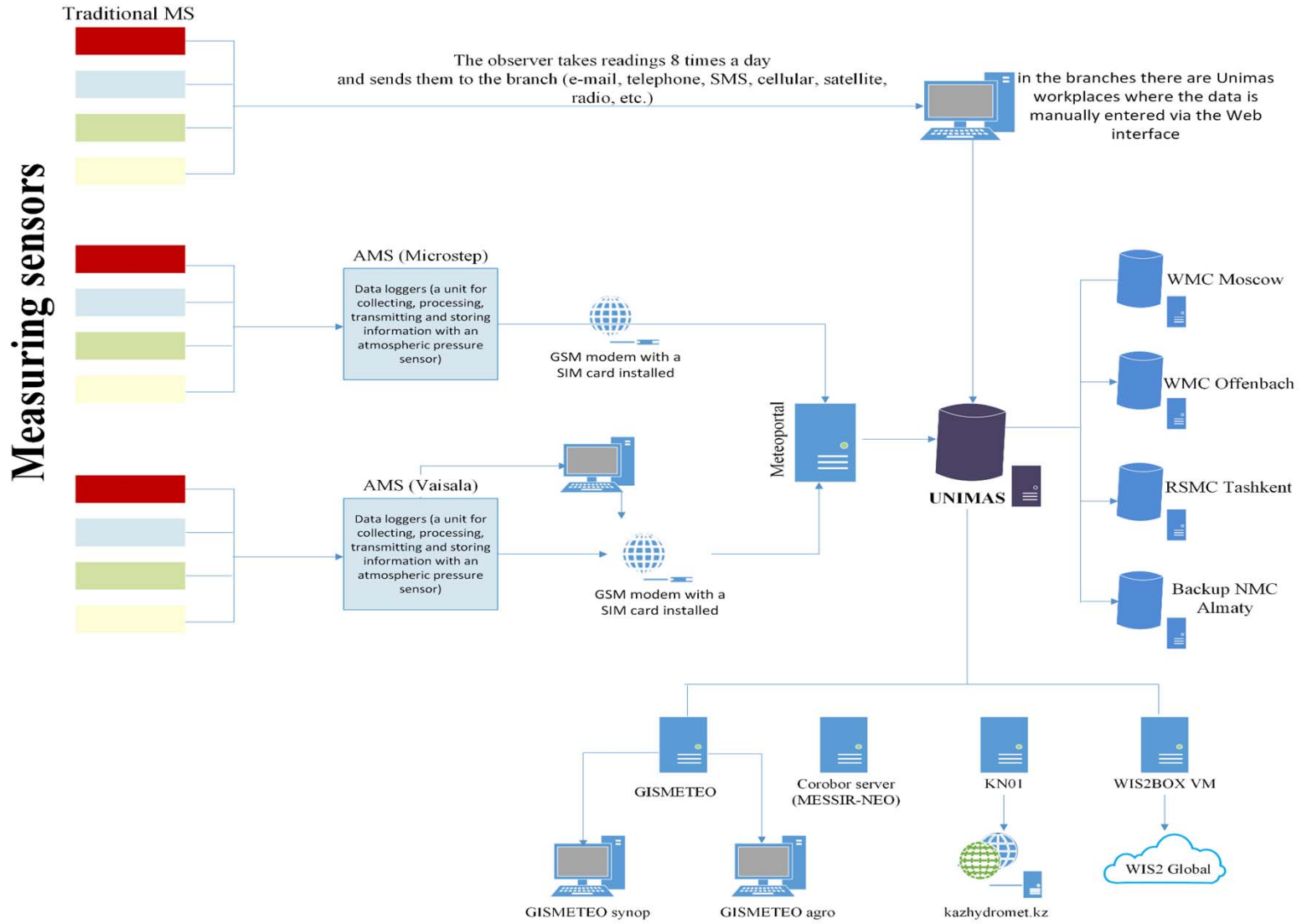
Station Type	Symbol	Quantity
Meteorological stations (Conventional)	M	226
Automatic meteorological stations	AMS	121
Aerological stations	AE	9



UNIMAS (Unified Meteorological Information System)



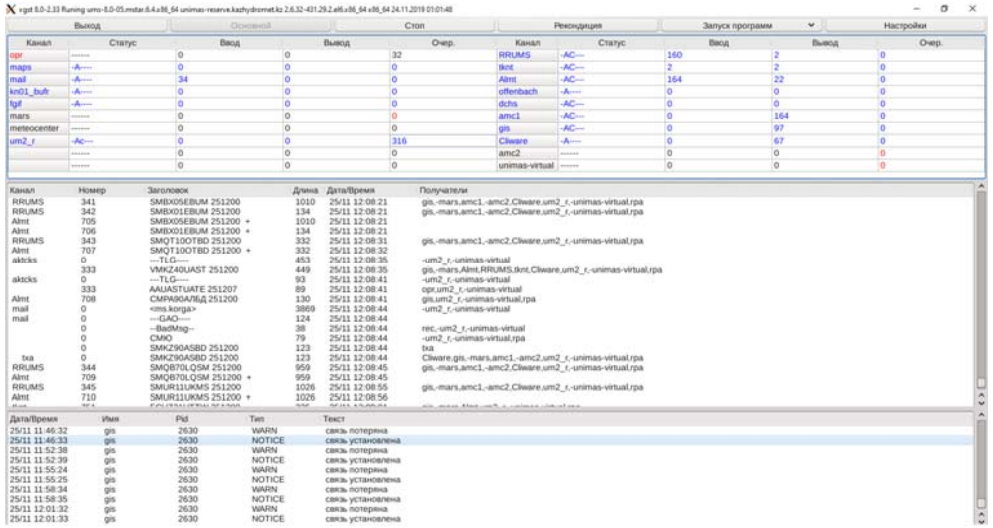
Scheme for transmitting information from meteorological stations

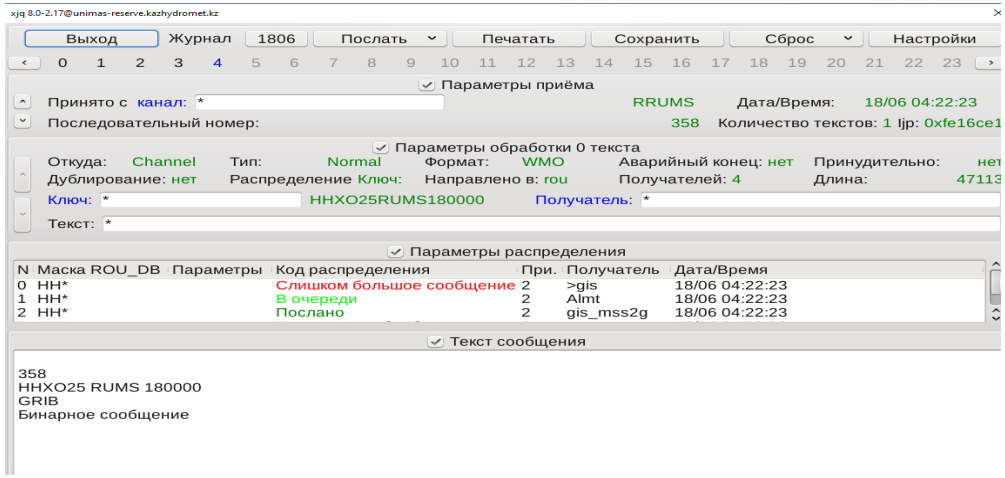


Key Functions of UniMAS

Core functional groups

- Reception and transmission of meteorological data
- Processing and storage of information
- Manual input and data validation
- Format conversion (e.g. BUFR, SYNOP, KN-01)
- Message distribution and queue management
- System administration and monitoring
- Channel management (e.g. GTS, regional centres)
- Database operations (archiving, retrieval, reporting)

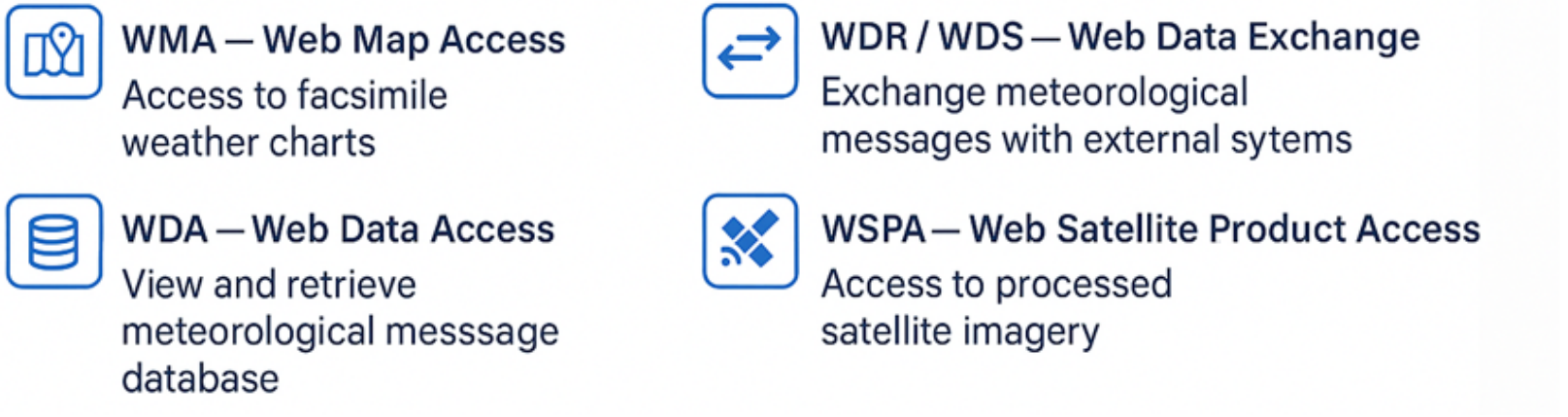




UniMAS Web Interface: Remote Access Functions

UniMAS provides secure remote web access for the operational transmission of hydrometeorological messages.

Key Web Modules:



- Enables real-time access for duty forecasters and regional offices
- Supports coordination, monitoring, and external data sharing

KN-01: Forecast Coordination and Messaging System

KN-01 is a specialized internal system designed for managing synoptic and storm-related information within Kazhydromet.

It provides a secure platform for:

- Creating, editing, and reviewing forecasts and alerts
- Operational messaging and coordination during hazardous weather events

It includes a forecast exchange function that allows real-time sharing of meteorological information between regional branches and the Central Office of RSE “Kazhydromet”.

Meteoportal

System Overview

A unified system for collecting data from automated meteorological stations (AMS) across the national observation network.

It provides a secure platform for:

- Creating, editing, and reviewing forecasts and alerts
- Operational messaging and coordination during hazardous weather events

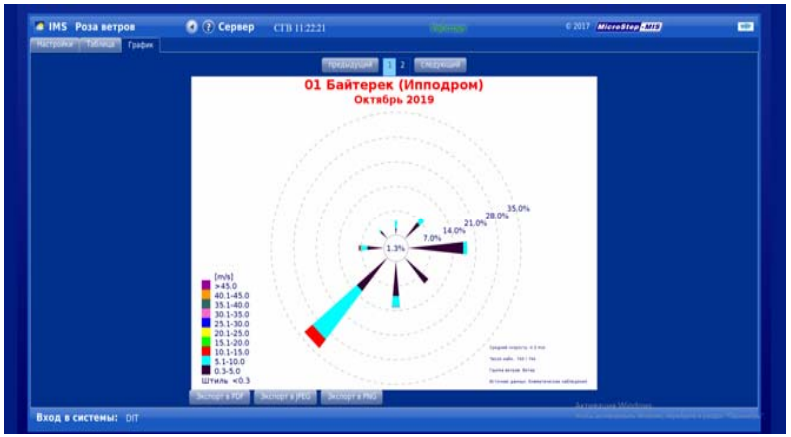
Collection Frequency

- Real-time data acquisition every minute
- Output formats: table, chart, report
- Custom periods: hourly, multi-hour, daily, monthly
- Statistical indicators: min, max, average values

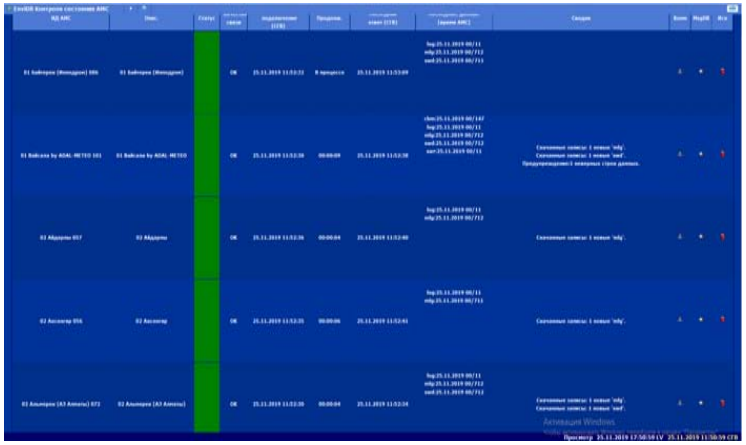
Meteoportal: Visualization Tools

Live Data Display

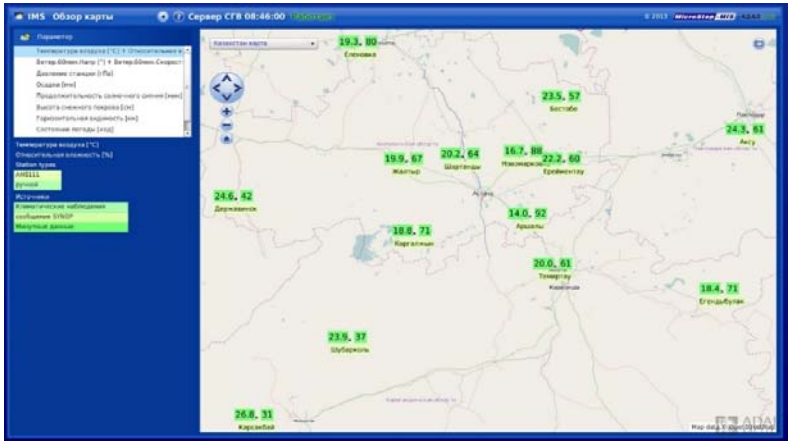
Wind Rose



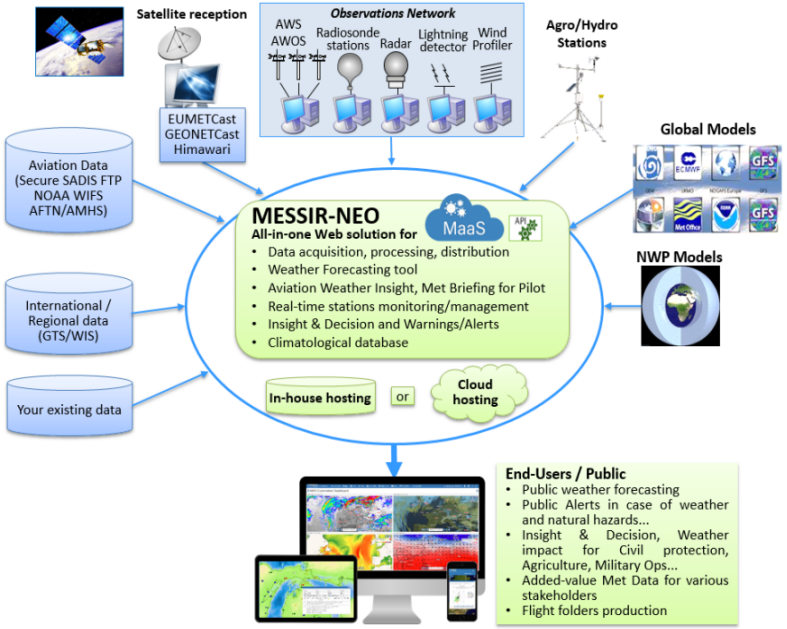
AMS Status Monitoring



Interactive Map View



MESSIR-NEO: From Data to Decision – Web-Based Forecasting and Alert Platform



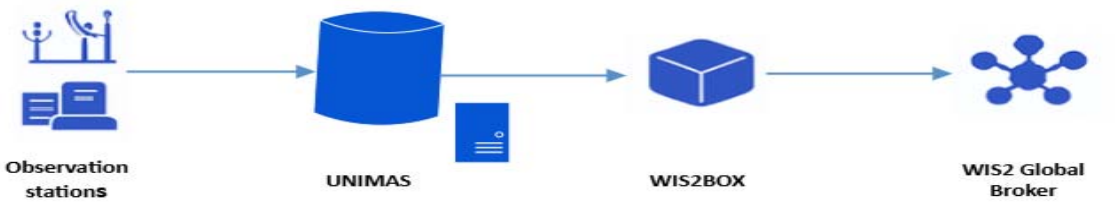
«Kazhydromet» RSE received three letters of guarantee from Campbell Scientific France: on November 22, 2023, on June 18, 2024 and on November 1, 2024.

However, to date, the obligations assumed in the letters of guarantee have not been fulfilled. In addition, we bring to your attention the existing problematic issues:

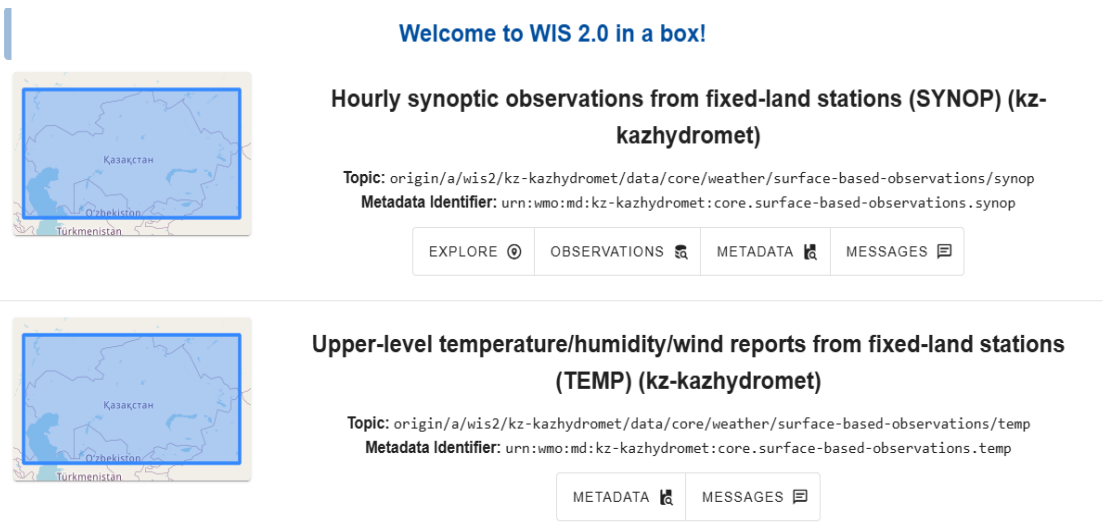
- Migration of NEODPS as the main switching system for messages to exchange data with RTH Moscow and Tashkent;
- Decoding of radar data (EEC, Baron, Selex);
- Display of local NWPs (WRF, SILAM) as a layer on the map;
- Data integration in Cyrillic (storm/aviation);
- Data integration with AMS (Microstep- MeteoPortal, Vaisala-MeteoServer);
- Display of FENGYUN satellite data as a layer on the map;
- Display of lightning data;
- Russification of the interface;

WMO Information System – Version 2 (WIS2)

Kazhydromet is actively integrating into WIS2 via a dedicated WIS2box node deployed at the National Center in Astana.



WIS 2.0 implementation plan



WIS2 – Integrations into the new WMO Information system

Kazhydromet's WIS2 Capabilities:

- Publishes data in open, standardized formats (JSON, CSV, BUFR)
- Uses MQTT and Web APIs for real-time data access
- Supports metadata-driven discovery and filtering
- Prepares selected observations (e.g. SYNOP, TEMP) for publication