



# **EXPANSION OF PRODUCTS OF RSE "KAZHYDROMET": the STATE CLIMATE CADASTRE (SCC)**

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**WMO Workshop 'Climate Data Stewardship needs and applications in support of  
the State of the Climate reporting'**

**23-26 June 2025**

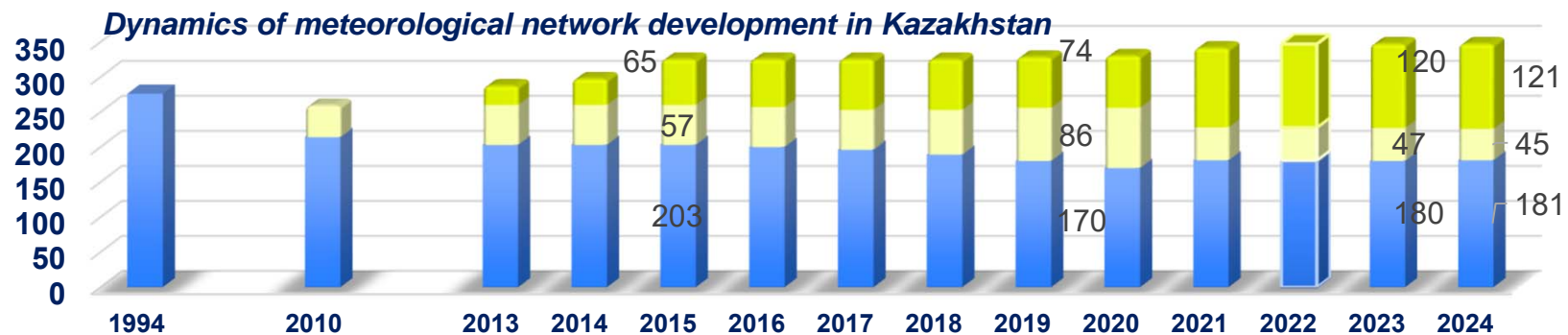
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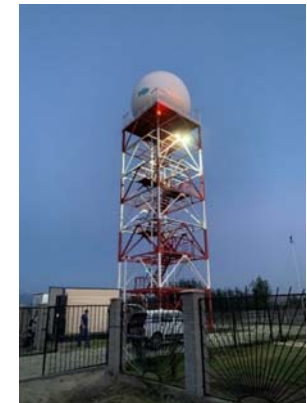
**Astana, 2025 r.**

# Meteorological monitoring

- Meteorological observations are carried out at 347 meteorological stations (121 automatic).
- Aerological observations 9 stations
- ДМРЛ 3
- Actinometric 37 stations (27 automatic stations)
- Ozonometric 5 stations

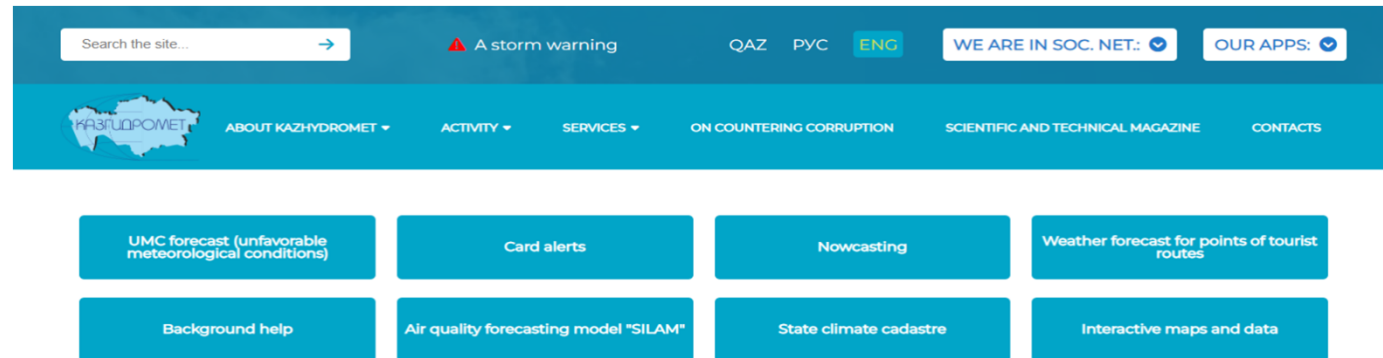


- ✓ The results of manual station observations undergo critical and semantic quality control
- ✓ The meteorological database is used for climate assessment, adaptation of predictive models, and research and development activities.
- ✓ The meteorological database and the State Climate Cadastre are available to users on the official website of RSE "Kazhydromet".



# The State Climate Cadastre

## What is SCC?



The **State Climate Cadastre** is a systematized collection of data based on meteorological information about the aggregate atmospheric conditions, including:

- air temperature,
- cloud cover,
  - atmospheric phenomena,
  - wind direction and speed,
  - precipitation,
  - other atmospheric and surface characteristics typical for specific areas.

## The data of the SCC includes:

1. **AVERAGE** values of meteorological parameters for a specific observation period: day, month, year

2. **EXTREME** values of meteorological parameters for a specific observation period: day, month, year

3. Average and extreme **DATES OF OCCURRENCE** of meteorological phenomena

4. **FREQUENCY** of meteorological phenomena or values of meteorological parameters

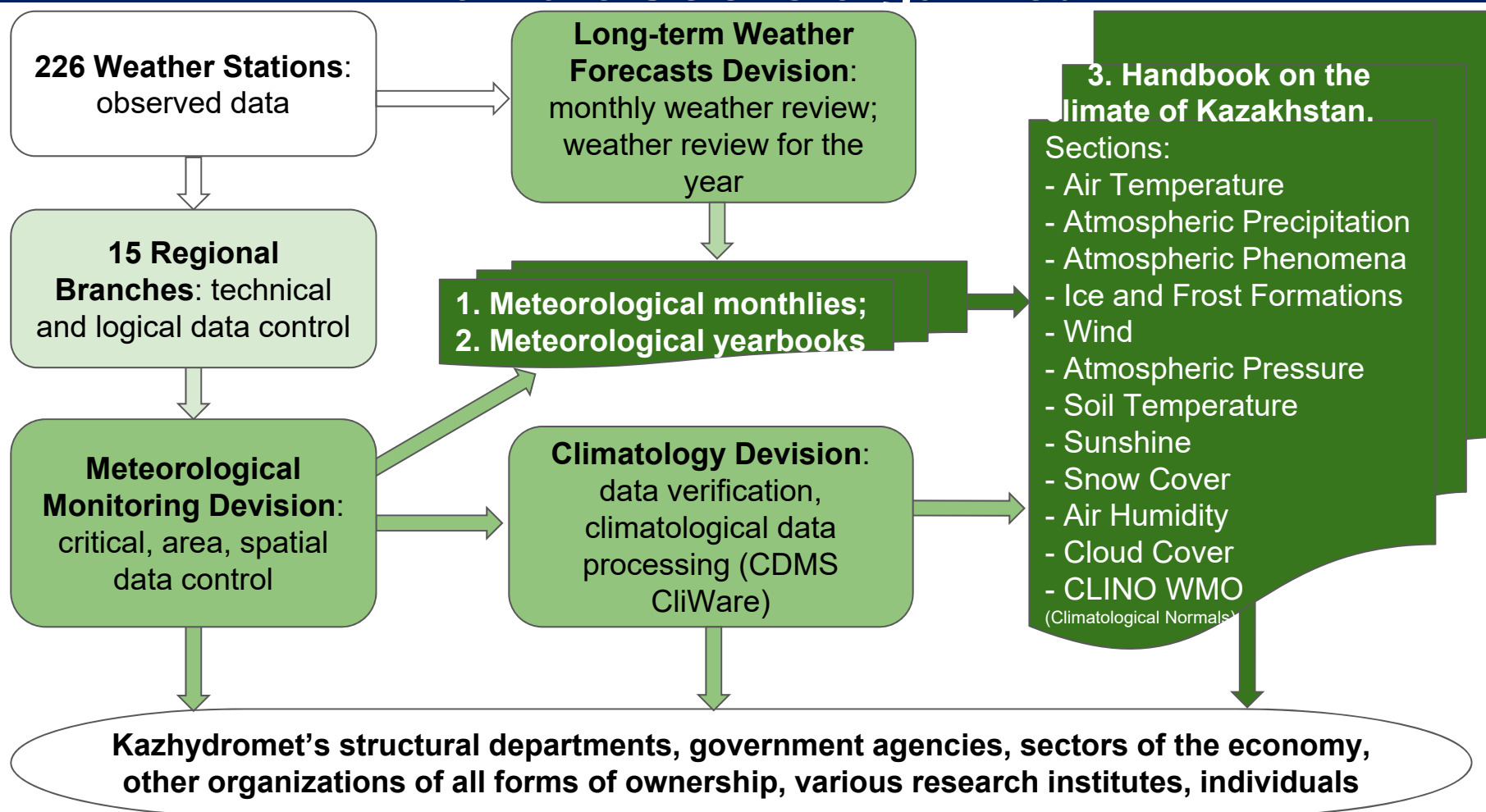
Maintaining the SCC is formed from the results of all stages of meteorological information processing and consists of three parts:

1. **METEOROLOGICAL MONTHLIES** with a review of the weather for the month (*16 tables/more than 100 characteristics*)

2. **METEOROLOGICAL YEARBOOKS** with a review of the weather for the year (*13 tables/about 100 characteristics*)

3. **HANDBOOKS ON THE CLIMATE** of Kazakhstan (*12 sections/113 tables/about 500 characteristics*)

## How the SCC is organized





### **Agricultural Production:**

Climate research helps in understanding changing precipitation patterns, temperature shifts, and the frequency of extreme weather events. This knowledge is vital for adjusting crop choices, planting times, irrigation strategies, and pest management practices.



**Water Resources:** Climate research informs predictions about future water availability, drought risks, and changes in hydrological cycles. This data guides water management strategies, reservoir operations, and allocation of water resources for agriculture, industry, and urban use.



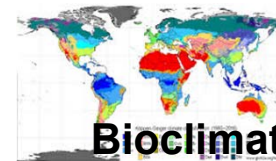
**Transportation:** Climate impacts transportation networks through extreme weather events (e.g., floods affecting roads and railways), seasonal changes (e.g., winter conditions affecting air travel and road safety), and sea level rise impacting coastal infrastructure. Climate research aids in planning resilient transportation systems.



**Construction:** Climate data informs building design and infrastructure development to withstand future climate conditions (e.g., heatwaves, increased precipitation). It influences decisions on materials, insulation, and energy-efficient designs.



**Energy:** Climate influences energy demand (e.g., heating and cooling requirements) and supply (e.g., hydropower generation, wind patterns affecting wind farms). Understanding climate variability helps in optimizing energy production and distribution infrastructure.



**Bioclimatology** studies how weather and climate affect human health and productivity by focusing on individuals' thermal comfort. Extreme conditions, whether cold or hot, can lead to health risks like hypothermia or heatstroke. This knowledge helps design environments that promote well-being and productivity.

## References:

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**Thank you for attention!**