

The forecast system in Kazakh National Hydrometeorological Center

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First category engineer of
short-term forecasting
division

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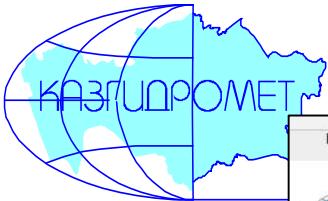
Our location



Kazakhstan is the world's largest landlocked country, and the ninth largest in the world, with an area of 2,724,900 square kilometres.

Kazakhstan has an 'extreme' continental climate, with warm summers and very cold winters. Air temperature reaches minus 45 degrees Celsius in winter in the northern regions of the country and up to plus 45 degrees in summer in the southern regions of the country.

Indeed, Astana is the second coldest capital city in the world after Ulaanbaatar. Precipitation varies between arid and semi-arid conditions, the winter being particularly dry.



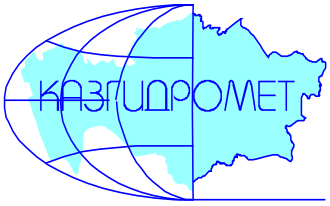
www.kazhydromet.kz

The screenshot displays the website interface for RSE "KAZHYDROMET", the Ministry of Energy of the Republic of Kazakhstan. The page includes a navigation menu with categories like Hydrometeorology, Agrometeorology, Hydrology, Climate, Ecology, Caspian Sea, Services, and About. A main banner features a weather forecast for October 31 to November 2, 2017, with the text: "Прогноз погоды на 31 октября – 2 ноября 2017 года. Тепло медленно будет отступать на восток". A detailed weather forecast for Aktau is shown, including a temperature of +9 °C, wind velocity of 2 m/c, and atmosphere pressure of 769 mm rt. st. Below this, there is a section for the Akmola Region with a table of weather data for various cities.

AKMOLA REGION		
Арнасай	+1 °C	☀
Астана	+1 °C	☁
Байтаныш	0 °C	☀

The Hydrometeorological Service of Kazakhstan was funded in January 1922. For today it is a large scientific and manufacturing enterprise of the Ministry of Energy.

For today RSE "Kazhydromet" includes 15 branches in each region of the Republic of Kazakhstan and in cities Almaty and Astana, where more than 3.5 thousand people work.



Goals and Objectives of Kazhydromet

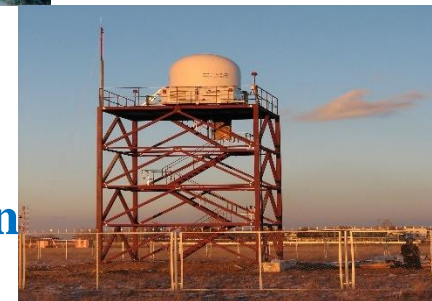
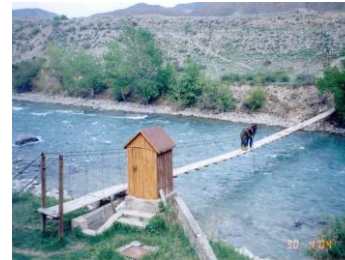
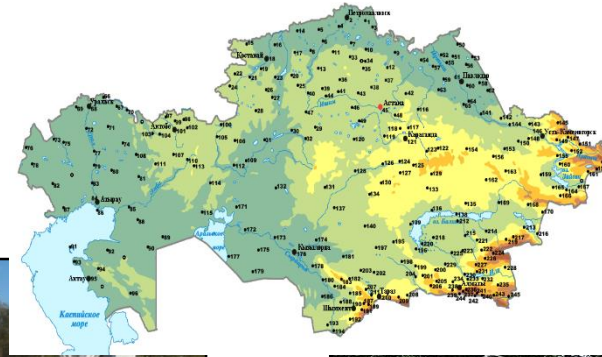
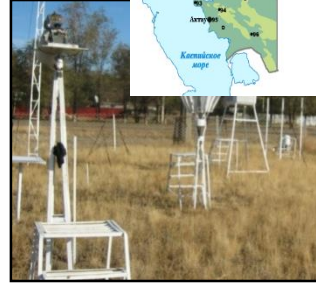
The main purpose of Kazhydromet is to provide information on weather, climate and environment, hazard and disaster meteorological, agrometeorological, hydrological phenomena and extremely high levels of pollution, provision of estimates and projections of quantity also the quality of water resources.

The main objectives of Kazhydromet:

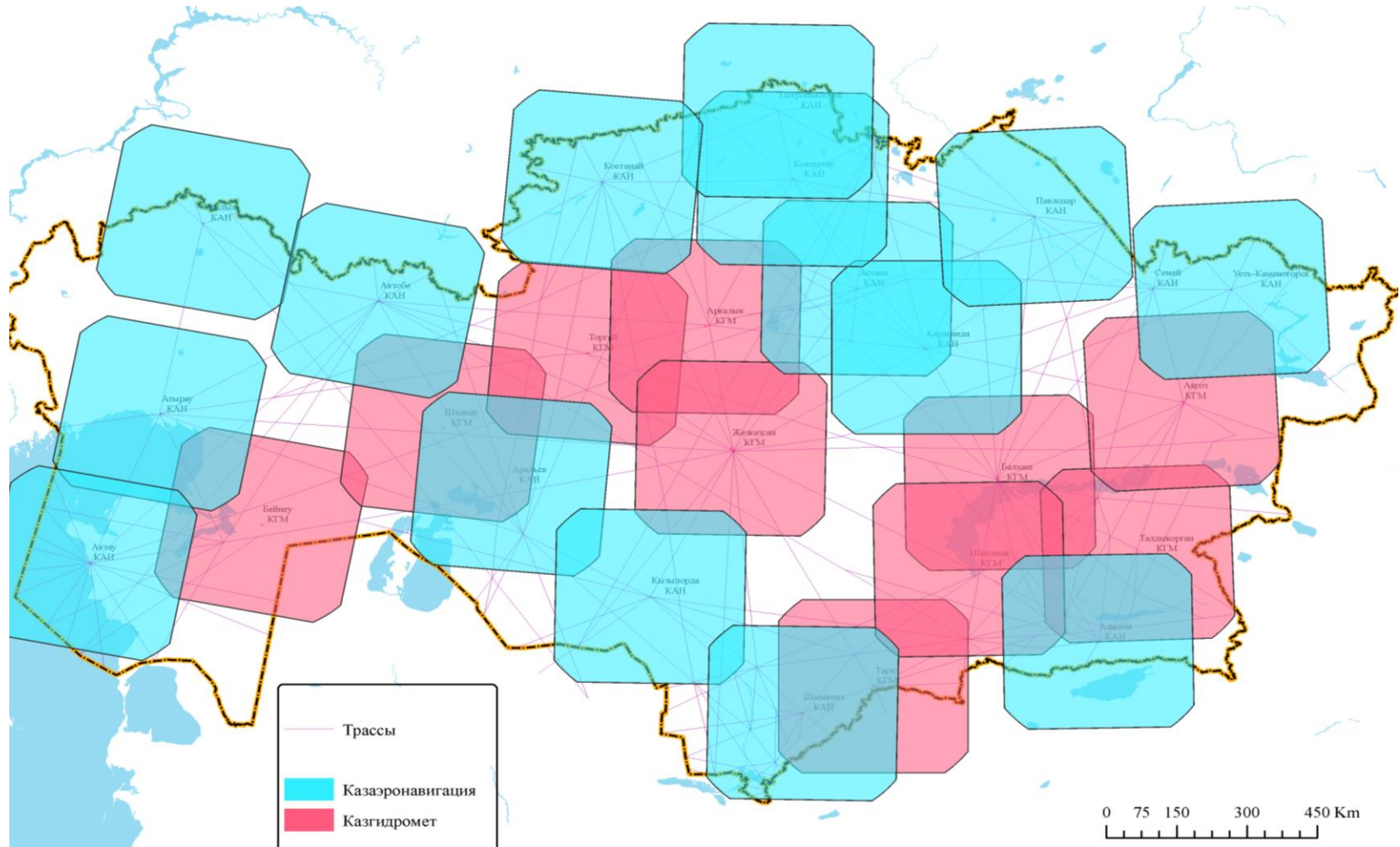
- 1. Development and preparation of all types of meteorological forecasts;**
- 2. Systematic meteorological observations and environmental monitoring;**
- 3. Warnings about the possibility of extreme weather events;**
- 4. Keeping the Republican fund data for Hydrometeorology and environmental pollution;**
- 5. Hydrometeorological support industries of the Republic of Kazakhstan.**

Monitoring of the Hydrometeorology and Environment

Monitoring is carried out on
328 meteorological stations, 83 of them
has an international status and included
in the global network
307 hydrological posts
88 agrometeorological posts
9 aerological stations
12 meteoposts
2 stations of snow avalanche
26 stations located in difficult areas
25 stations by snow routes
142 stations of air quality
105 water bodies of water quality
39 cities provides monitoring of soil contamination
85 stations of radiation exposure
46 stations of the chemical composition of precipitation
39 stations of the chemical composition of snow cover
The 1st radar MARS has been installed in 2013 in Taraz,
southern Kazakhstan.

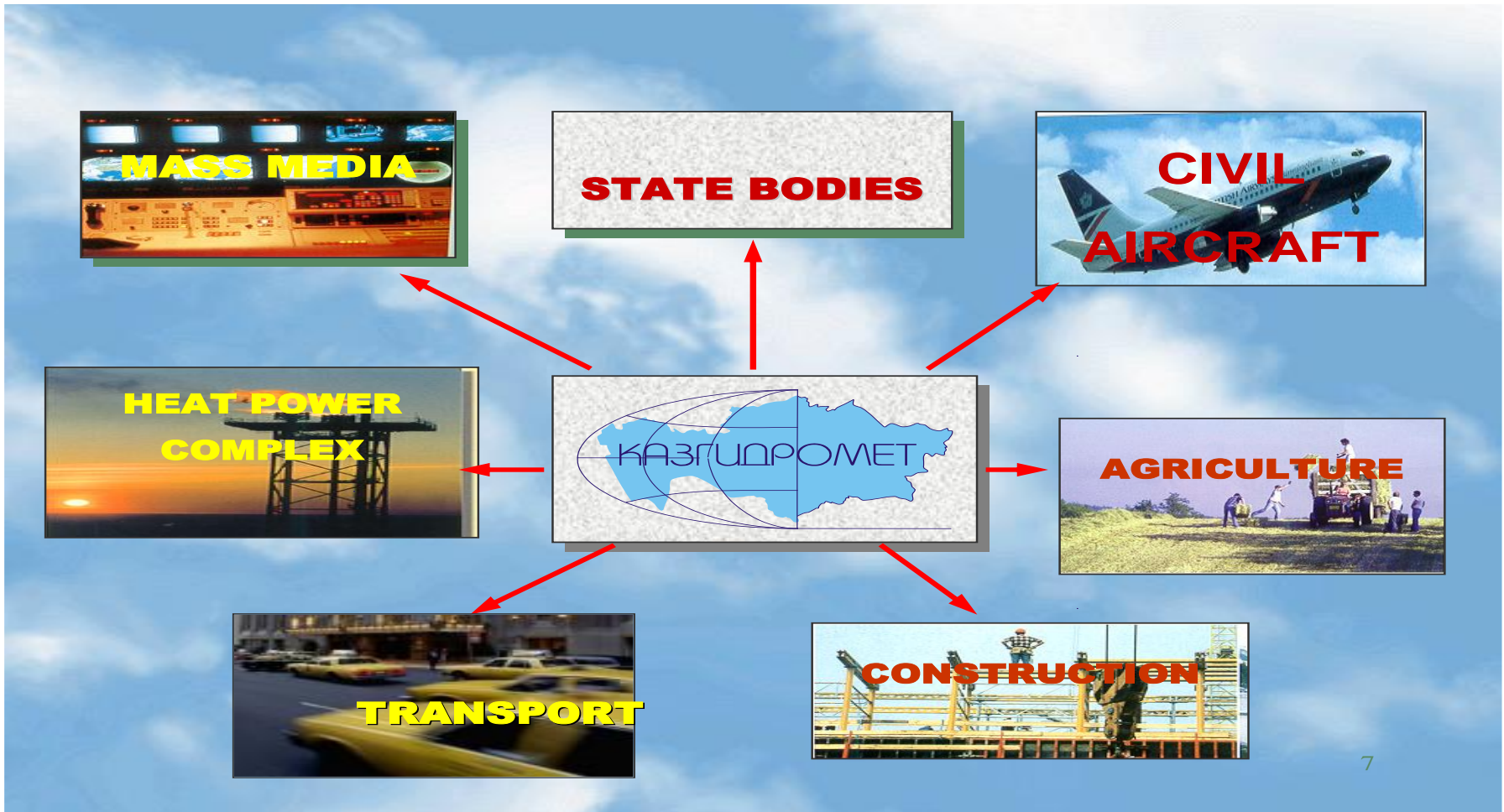


Radar positioning scheme



Recently, Kazhydromet purchased two more radars and in the next five years it is planned to cover the whole territory of the republic.

Consumers of the hydrometeorological information



The basic consumers of hydrometeorological production are the Public authorities, Power industry, Agriculture, Oil and gas complex, Sailing charter, Air and road transport, Water supply and construction, Ecology and tourism, Population, Mass media

Main products manufactured by the RSE "Kazhydromet", which is transmitted

- Storm warnings as they occur
- Weather forecast for 24-168 hours
 - for 10 days
 - for month and season
- bulletin of the daily hydrometeorological forecast
- bulletin of the snow avalanche forecast
- bulletin of the flood
- weekly bulletins on the Caspian Sea
- monthly ecological bulletin
- agrometeorological bulletin
- agrometeorological forecasts for 10 days
- annual reports

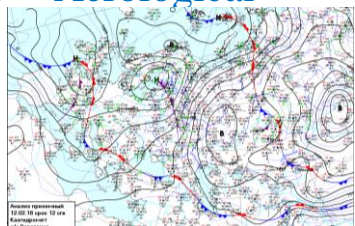
- Administration of the President of Kazakhstan
- Ministries of Kazakhstan
- Government Administration
- Committee of Emergency
- Mass media: TV, radio, magazin etc
- Center for collecting and processing information, Almaty
- All regional branches Kazhydromet



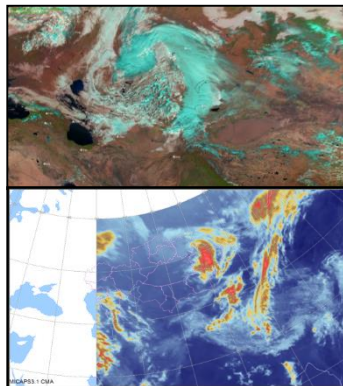
Organization of short and medium range prediction



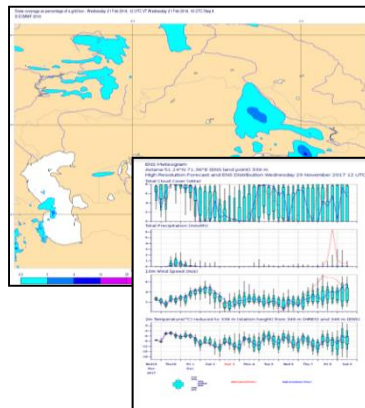
- ▶ **Observation data:**
- ▶ Ground stations
- ▶ Aerological



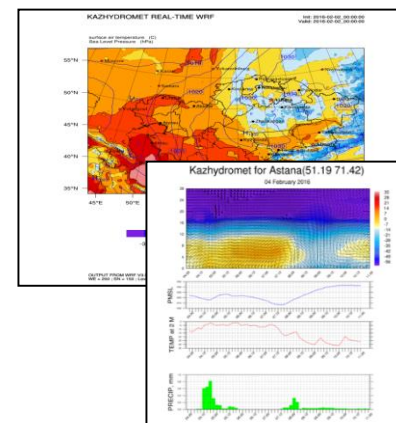
- ▶ **Synoptic charts:**
- ▶ (Kazhydromet, Roshydromet)



- ▶ **Satellite data:**
- ▶ Eumetsat (EC)
- ▶ CMACast (China)
- ▶ SRC "Planet" (Russia)



- ▶ **Forecast charts of ECMWF (EC):**
- ▶ Short range
- ▶ Medium range
- ▶ Extended range
- ▶ Seasonal forecast



- ▶ **Forecast charts of adapted WRF-Kazhydromet:**
- ▶ Short range
- ▶ Medium range

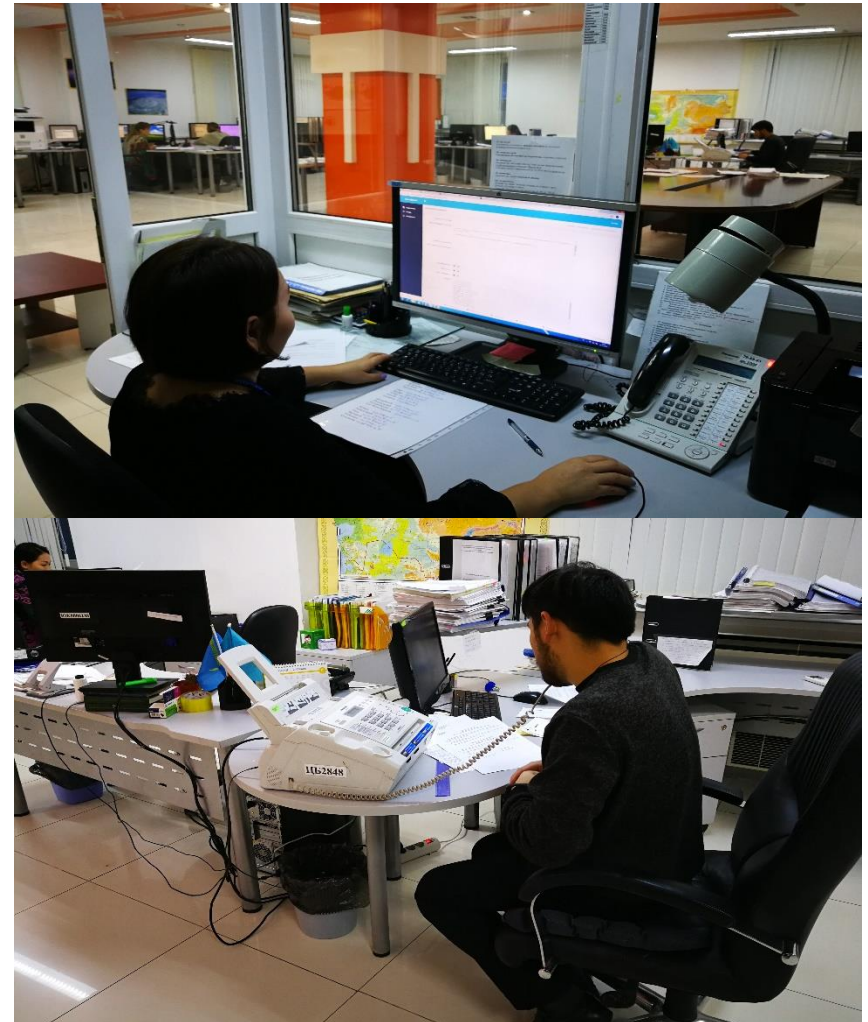
▶ **Forecaster** issues weather forecasts based on above mentioned data and charts

CRITERIA OF HAZARDOUS AND NATURAL DISASTER HYDROMETEOROLOGICAL PHENOMENA

		Hazard criteria		Criteria of disaster natural phenomena		
		Intensity	Duration, hour	Intensity	Duration, hour	
1	Precipitation, mm					
	•Snow	7-19	≤12	≥20	≤12	
	•Rain, wet snow	15-49	≤12	≥50	≤12	
	•Rain in mod-prone areas	15-29	≤12	≥30	≤12	
2	Wind, squall, tornado, maximum speed, m/s	15-29	any	≥30	any	
3	Snowstorm (bizzard), including low, prevailing wind speed, m/s. Visibility, m	≥15	<12	≥15	≥12	
		any		≤500		
4	Duststorms, prevailing wind speed, m/s Visibility, m	≥15	<12	≥15	≥12	
		any		≤500		
5	Fog, visibility, m	≤500	any	≤100	≥6	
6	Ice-freezing phenomena, diameter, mm					
		•Ice	1-19	any	≥20	any
		•Snow deposits	-	-	≥35	any
	•frost	≥30	any	-	-	
7	Frost, in the air or on the soil surface during the growing season	<0	any	<0	any	
8	Hail, diameter, mm	1-19	any	≥20	any	
9	Thunderstorm	any	-	-	-	

DEVELOPMENT AND TRANSFER OF STORM WARNINGS

According to the guidance of weather forecast service of RSE “Kazhydromet”, if we expect a phenomenon that will reach the criteria of hazardous phenomena or natural disaster hydrometeorological phenomena, as well as dramatic changes in weather (decrease or increase in air temperature by 10 degrees or more), we make a storm warning. Then we send it by e-mail and fax to all state bodies, first of all to the Committee of Emergency.



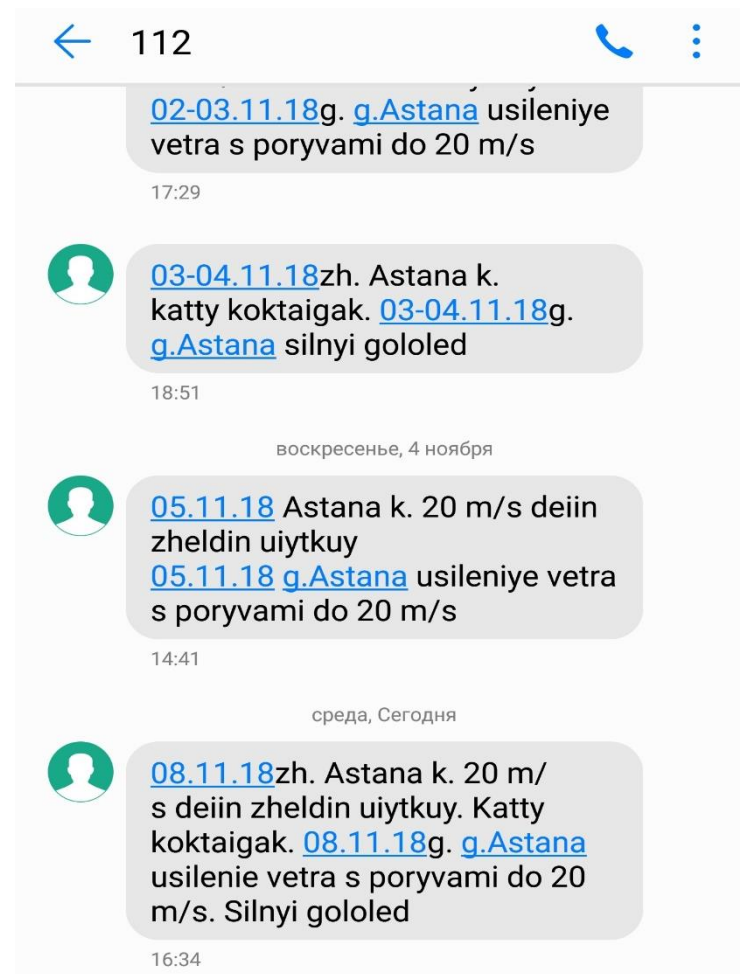
This is the part of the scheme we are transmitting

СХЕМА доведения предупреждений и оповещений об угрозе возникновения опасных явлений			
Имя	Номер телефона	Время	Фамилия принявшего
Тимирязева Заместитель генерального директора РГП «Мирот» Мирот Подзатович	в приемную (в выходные, праздники и ночью): +7(701)533-9477	12-14	
Тимирязева Заместитель генерального директора РГП «Мирот» Мерек Абдрахметулы	в приемную (в выходные, праздники и ночью): +7(701)522-1519	12-14	
Тимирязева Заместитель генерального директора РГП «Мирот» Султанов Нуркен	в приемную (в выходные, праздники и ночью): +7(771)100-5533	12-14	
Тимирязева Заместитель генерального директора РГП «Мирот» Данара Кизатовна	в приемную (в выходные, праздники и ночью): +7(775)809-2780	12-14	
Благовошения ГМЦ Шмидт Марии Эвальдовна	79-83-87, 1112 в выходные, праздники и ночью: д. 31-50-60 с. 87019033243	12-14	
Благовошения филиалы (по электронной почте) разделения в кризисных ситуациях ЧС МВД РК	Тел. эл почта Ф. 32-16-72(если на автомате, то звонить по телефону и писать фамилию принявшего) Т. 32-32-86, 32-32-76 Т. 7727-293-06-78 Ф. 24-51-07 Т. 70-17-22 Ф. 52-77-70 Т. 72-30-02 Ф. 37-36-01 Ф. 71-45-64 Ф. 7727-291-43-98 Т. 7727-291-18-81, Т. 7727-291-27-55 centr@emerkz centr@resurs.kz centrast@mail.ru od_dchs_ast@emerkz od_dchs_ast@mail.ru, dchs_alm@emerkz od_dchs_alm@emerkz dchs_almob@emerkz od_dchs_almob@emerkz dchs_akm@emerkz	12-08 12-18 12-19 12-20 12-21	Жаннаев
Благовошения оперативно-исполн. системы «Селезавит»			
8	Министерство энергетики РК Ф. 74-08-02 т/ф. 74-08-44 Т. 74-00-75 (приемная курирующего вице-министра) u.negmanova@energo.gov.kz k.bozumbayev@energo.gov.kz kence@energo.gov.kz	12-14	Сборная не работает не отвечаем
9	ГУ «Центр медицины катастроф» КЧС МВД РК Филиалы по городу Астана Служба охраны президента РК	T.55-94-76 cmk_astana@nur.kz cmk_mchs@mail.ru	12-14
10	Администрация Президента Республики Казахстан dabvl@akorda.kz	12-14	
11	Служба государственной охраны РК Ф. 75-88-59 Т. 75-88-52 748896@mail.ru	12-24	
12	Руководитель Канцелярии Премьер-Министра РК Ф. 24-50-24 Т. 74-50-01	12-14 12-25	
13	Канцелярия Премьер-Министра РК Ф. Т. 74-58-60 Т. 74-52-61	—	
14	Приемная Вице-Премьера РК Т. 74-50-03 Т. 74-50-96 745003@bk.ru	12-14	
15	Информационный отдел Мажилиса Парламента РК Ф. 74-63-17	12-26	

The Committee of Emergency in turn notifies the population of the republic by sending message 112 to cell phones:



We also closely cooperates with the **Ministry of Education** for the abolition of classes in schools and universities.



We also place a storm warning on the official website of Kazhydromet:

The screenshot shows the top navigation bar of the Kazhydromet website. It includes language options: ҚАЗ, РУС, and ENG (highlighted in a dark blue box). A red banner with the text "Storm warning" is positioned to the right of the language options. Social media icons for Facebook, VK, Instagram, and RSS are located in the top right corner.

Below the navigation bar is the logo for RSE "KAZHYDROMET" (Ministry of Energy of the Republic of Kazakhstan) and a search bar with the text "Поиск по сайту".

The main content area features a dark blue header with navigation tabs: HYDROMETEOROLOGY CENTER, HYDROLOGY, CLIMATE, ECOLOGY, CASPIAN SEA, SERVICES, and ABOUT. Below this is a large banner image of the Astana Tower. The banner contains the text: "Прогноз синоптической ситуации и важнейших явлений погоды по территории Казахстана".

On the right side of the banner, there is a weather forecast for Astana (Ақтау). The forecast shows the current temperature as +10 °C, wind velocity as 2 m/c, and atmosphere pressure as 774 мм рт. ст. Below this, it states: "Ожидается неблагоприятные метеорологические условия загрязнения воздуха." (Unfavorable meteorological conditions of air pollution are expected).

Ақтау		
07.11	08.11	09.11
+10 °C		
Wind velocity: 2 м/с		
Atmosphere pressure: 774 мм рт. ст.		
Ожидается неблагоприятные метеорологические условия загрязнения воздуха.		

We notify the population on various TV channels in the news and various programs



Астана

Лаура Сайлыбаева инженер-синоптик РГП "Казгидромет"

24 КАЗАҚ

Оқиға

Атырау облысында 96 бас жылқы сақау ауруынан арам елді

17:44
28.06.17



Астана

ПОКАЗАТЬ ДРУГИЕ ВИДЕО

ПРОГНОЗ ПОГОДЫ



АСТАНА

www.astanatv.kz

КҮН ЖЫЛЫНАДЫ



9 ҚАЗАН

EUR 427.18

€

ӘЛЕУМЕТ





ӨСКЕМЕНДЕ РҮСТЕМ ЕСДӨУЛЕТОВ АТЫНДАҒЫ ІІ РЕСПУБЛИКАЛЫҚ ТЕАТРАЛЫҚ ФЕСТИВАЛІ ӨТЕДІ

Meteoalert system

Current weather

Meteoalert

Hydroalert

-  No particular awareness of the weather is required
-  The weather is potentially dangerous
-  / The weather is dangerous. There is a possibility of natural disasters, damage.
-  The weather is very dangerous. There is a possibility of major disruptions and catastrophes



-  Wind
-  Snow/Icing
-  Thunderstorm
-  Fog
-  Very high temperature (max)
-  Very low temperature (min)
-  Прибрежные события
-  High fire hazard
-  Avalanche
-  Rain
-  Floodwaters
-  Flood
-  Short-lived mudflow
-  Other hazards

The meteoalert system was developed by Europeans. It was introduced in Kazakhstan as part of the project “Predicting severe weather in Central Asia”. All Central Asian countries have a Meteolert system.

World Bank supports us.

The degree of intensity of the hazardous phenomenon is also indicated by different colors. Green means no danger is expected. Yellow and orange colors indicate the possibility of a hazardous phenomenon in a given area, and red indicates a natural disaster phenomenon.

All possible phenomena are indicated by conventional signs.

Consequences of strong wind, rain and snow in Kazakhstan:



All work related to damage reduction and restoration is performed by the committee of Emergency.

Both of these cases occurred in Astana this year in summer as a result of heavy rain and increased winds.

1. During the day, 30 mm of rain fell. This was due to the cyclone shifted from the districts of Moscow.

2. Gust up to 35 m/s (squall) was caused by the invasion of cold air masses in the daytime, at about one o'clock when the air temperature was 23 degrees above zero. The invasion of arctic cold air masses caused squall, hail, heavy rain and a sharp drop in air temperature by 10 degrees.

The number of dangerous weather phenomena is about 150 cases per year, and about 50 natural disasters.

We receive storm warnings from Novosibirsk (Russia), we exchange data on storm warnings with Azerbaijan, Uzbekistan, Kyrgyzstan.



THANK YOU FOR
YOUR ATTENTION

RAHMET

