



Seasonal weather forecasts

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<https://gumrf.ru/sveden/struct/fac/ima/arc/ngmie/>

How we define the weather forecast ?

- ❑ **WEATHER FORECAST** — a scientifically based assumption about the future state of the weather in a certain point or region for a certain period.
- ❑ **Produced (compiled) by meteorological services on the basis of various techniques and includes:**
 - short term weather forecasts – 1-3 days;
 - medium-term weather forecast – 4-10 days;
 - long-term weather forecast-more than 10 days;
 - seasonal weather forecast – describes probability of weather conditions in a particular geographical area in a particular season of the year.



JOINT IHO/IMO/WMO

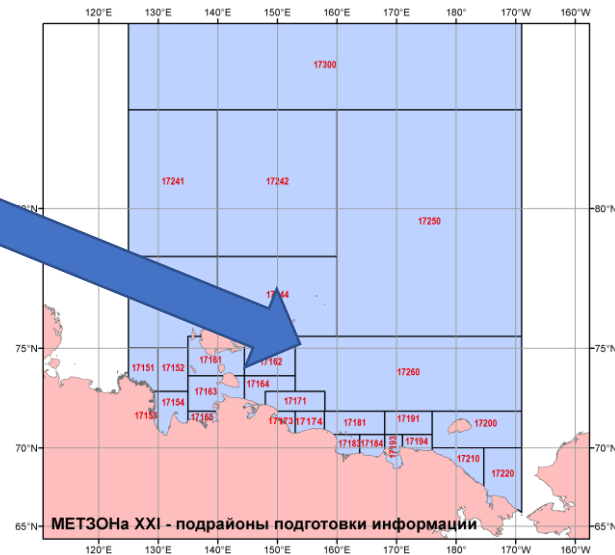
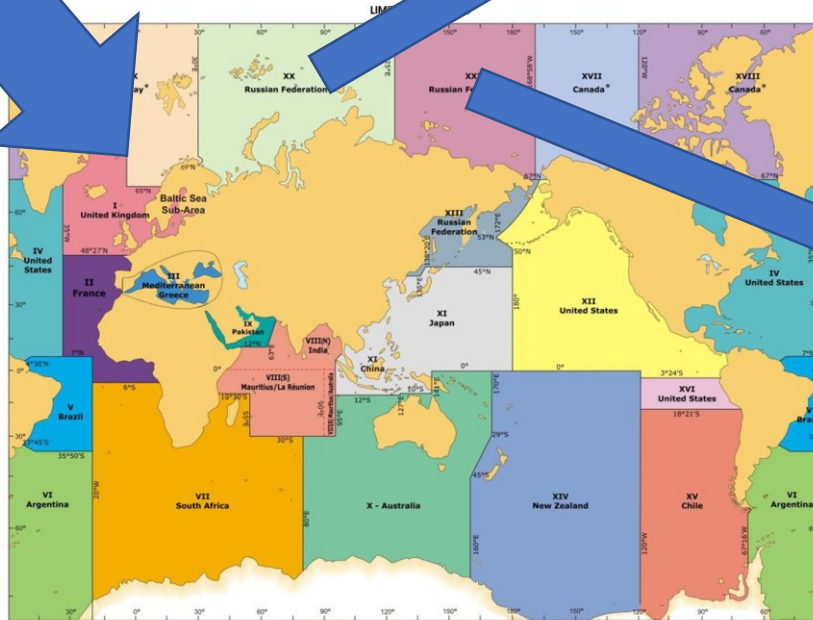
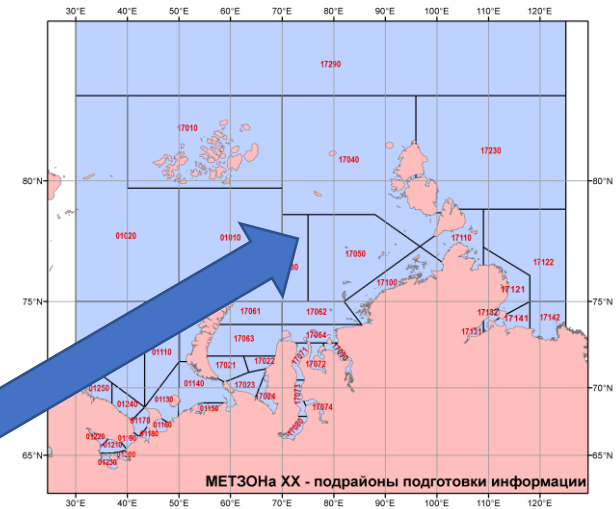
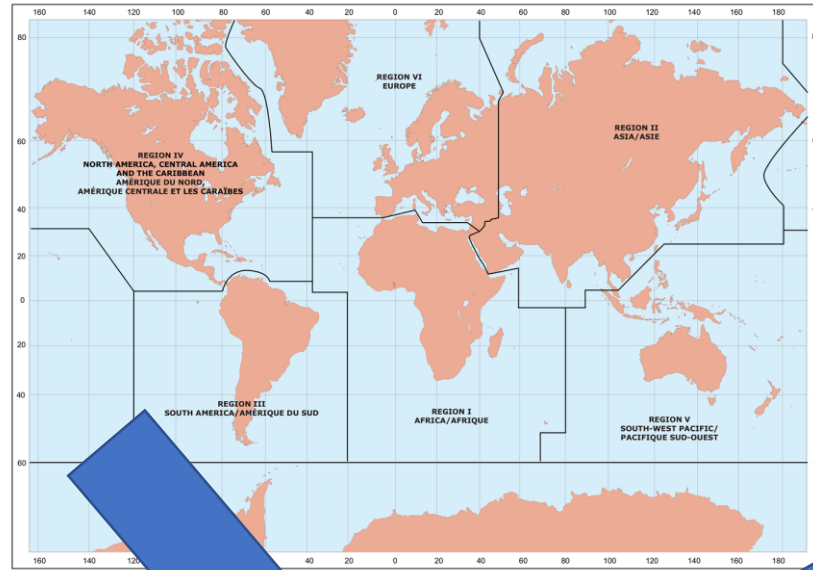
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WORLD METEOROLOGICAL ORGANIZATION REGIONS



Weather forecasts for the ship weather routing is a joint issue for the IMO, IHO and the WMO

What are the required parameters ?

- Wind, wind waves and swell
- Visibility range
- Cloud cover and precipitation
- Air and water temperature
- Icing
- Ocean currents and sea level
- Sea ice and icebergs
- Dangerous weather events – tsunami, thunderstorms, squalls, water tornadoes ...



<https://russian.rt.com/russia/article/473968-yaponskoe-more-propalo-sudno-vostok>

Seasonal probabilistic forecast – definition and presentation

- Description of the average meteorological parameters expressed as deviations from the climatic values for this season.
- Presentation of climate data:
 - Marine data come from a wide variety of sources and relate to different periods.
 - Combination of data from different sources should be approached with caution, since the main focus should be on the stability and continuity of data series, as well as careful verification of historical data, especially when data is processed over a long period of time

Meteorological support of navigation

- ❑ National meteorological services have been providing ship weather routing for more than 50 years
- ❑ Experience of these services can be summarized in the following way
 - routing based on meteorological conditions reduces both the time spent on crossing the ocean as well as the damage to the ship and cargo caused by meteorological conditions
 - planning a voyage and determining the ship's route, based on the minimum travel time, should be performed taking into account marine climatological data, loading rules and forecasts
 - forecasts and warnings should cover areas where wind waves are or will be observed above the threshold value and should also contain information on direction, period of waves and swell
 - the greatest benefit one can obtain in the winter months - December, January, February in the Northern hemisphere and in June, July, August in the Southern Hemisphere
 - average gain in time is more if the ship goes west because the going east is usually dominated by the passing waves which do not have a large impact on the speed of the vessel
 - recommended routes depend on the variability of meteorological conditions along the arc of a great circle, or near it

Conclusions

- For marine meteorological services the training of navigators in planning, executing a voyage and using seasonal marine forecasts is a requirement
- Absence of seasonal forecasts for seafarers increases possible risks of encountering hazards and such weather conditions that will affect the safety of navigation
- As an example, I would like to note the AARI seasonal forecasts of weather and ice conditions in the waters of the Northern Sea route aimed to ensure safety of navigation

THANK YOU FOR YOUR ATTENTION!

