



# FIG Working Week 2024

19-24 May

Accra, Ghana

Your World, Our World:  
Resilient Environment  
and Sustainable  
Resource Management  
for All



**Rosreestr**  
The Federal Service  
for State Registration,  
Cadastral and Cartography



## Roskadastr

### Creation and development of continuously operating networks in the Russian Federation. Yesterday, today, tomorrow.

Aleksei LAPSHIN  
Head of space geodesy department



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GEOSA  
General Authority for Surveying  
and Geospatial Information



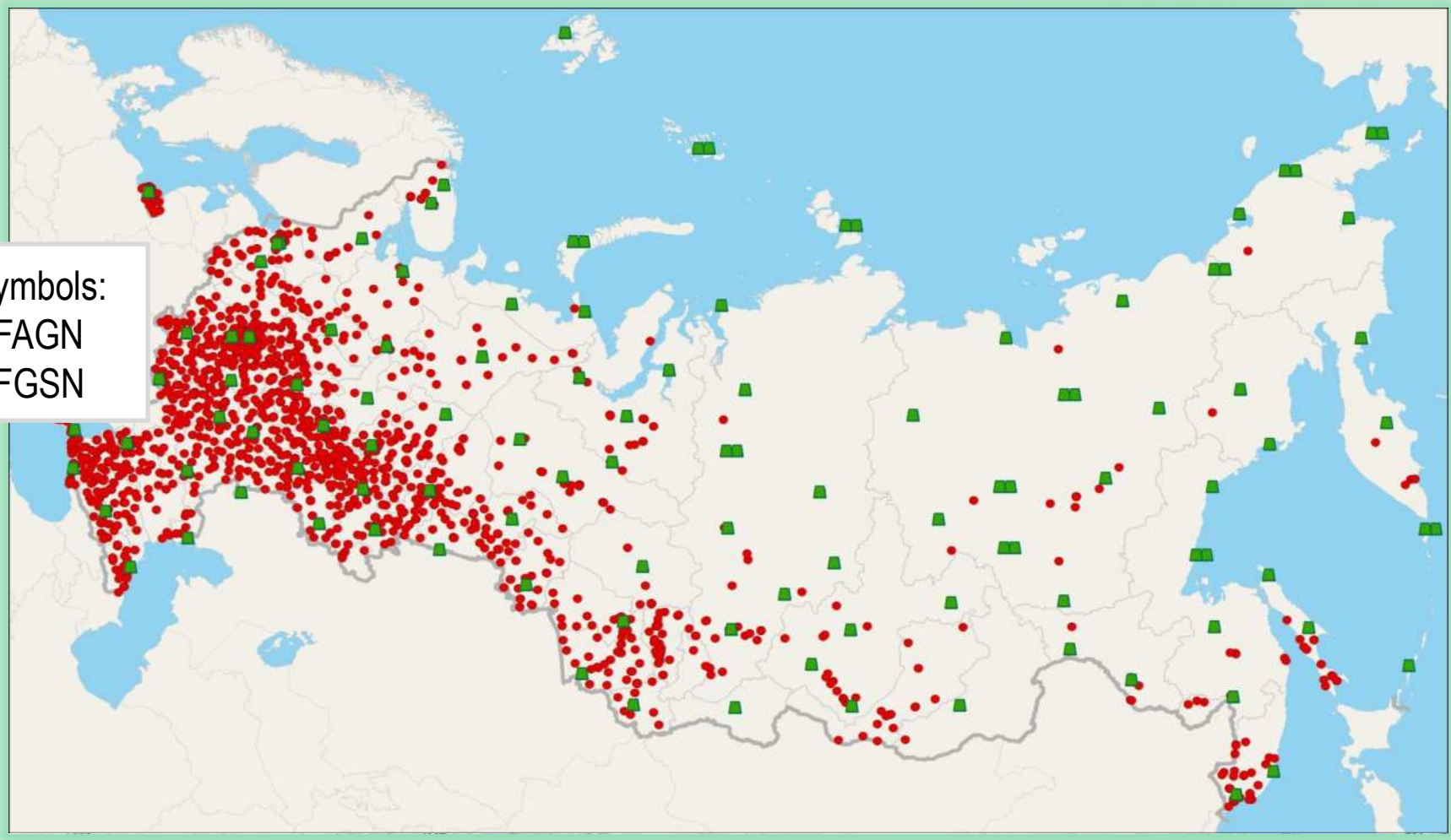




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Symbols:  
 FAGN  
 FGSN

**CORS networks:  
 Fundamental  
 Astronomical and  
 Geodetic Network  
 (FAGN)**

**Federal Geodetic  
 Stations Network  
 (FGSN)**



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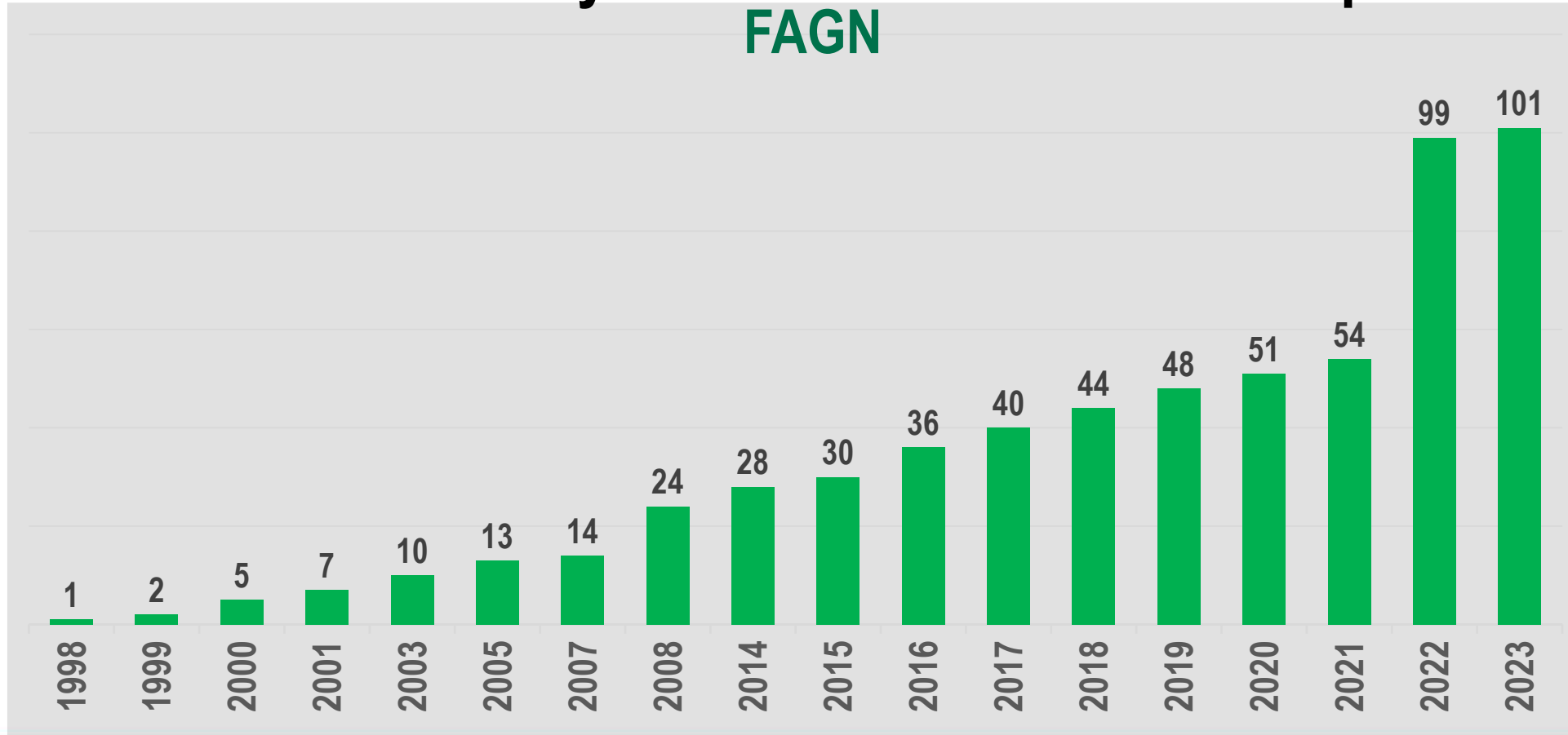
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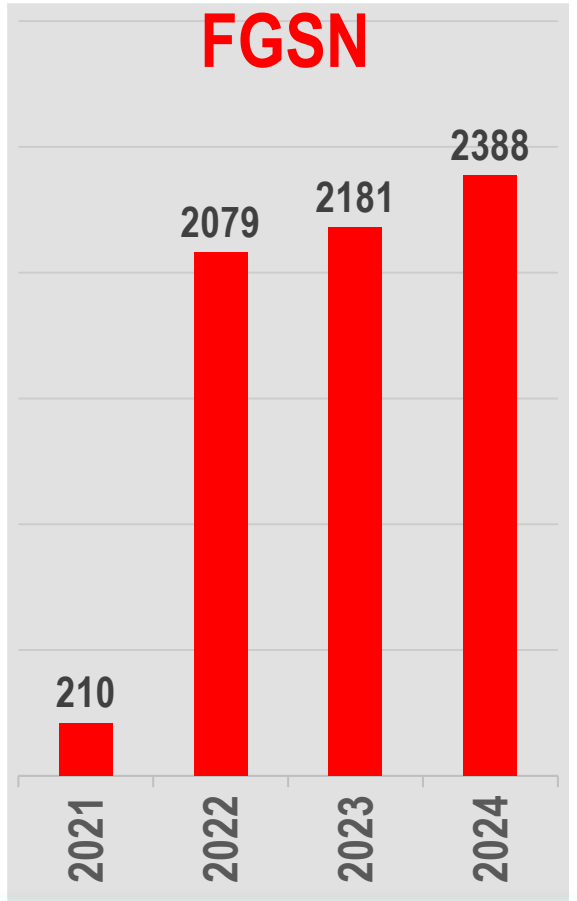
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## Dynamics of networks development

FAGN



FGSN





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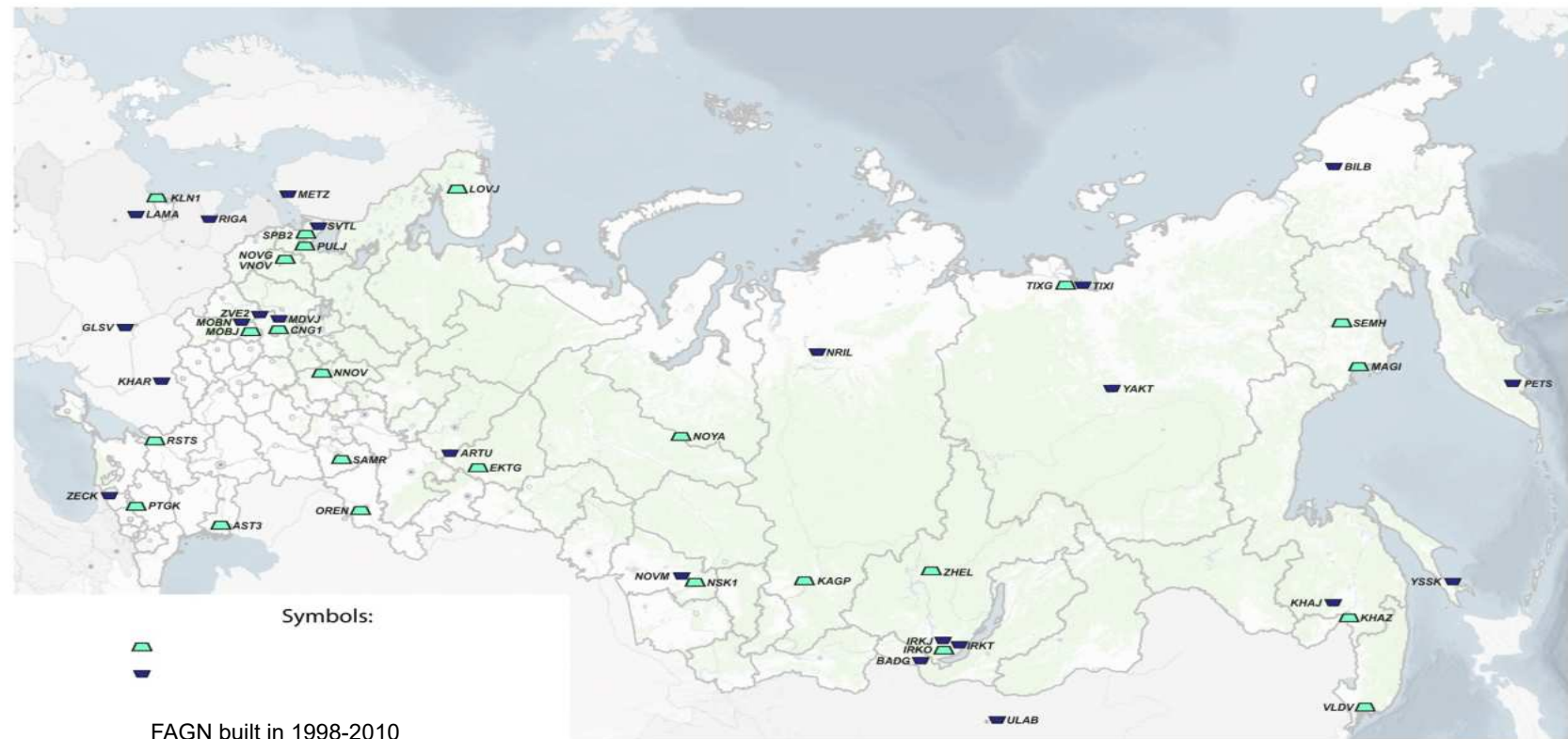
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### Early 2010s

### Just 20 stations for huge territory.

### GSK-2011 (2011.0)



Symbols:  
▲  
▼  
FAGN built in 1998-2010  
IGS

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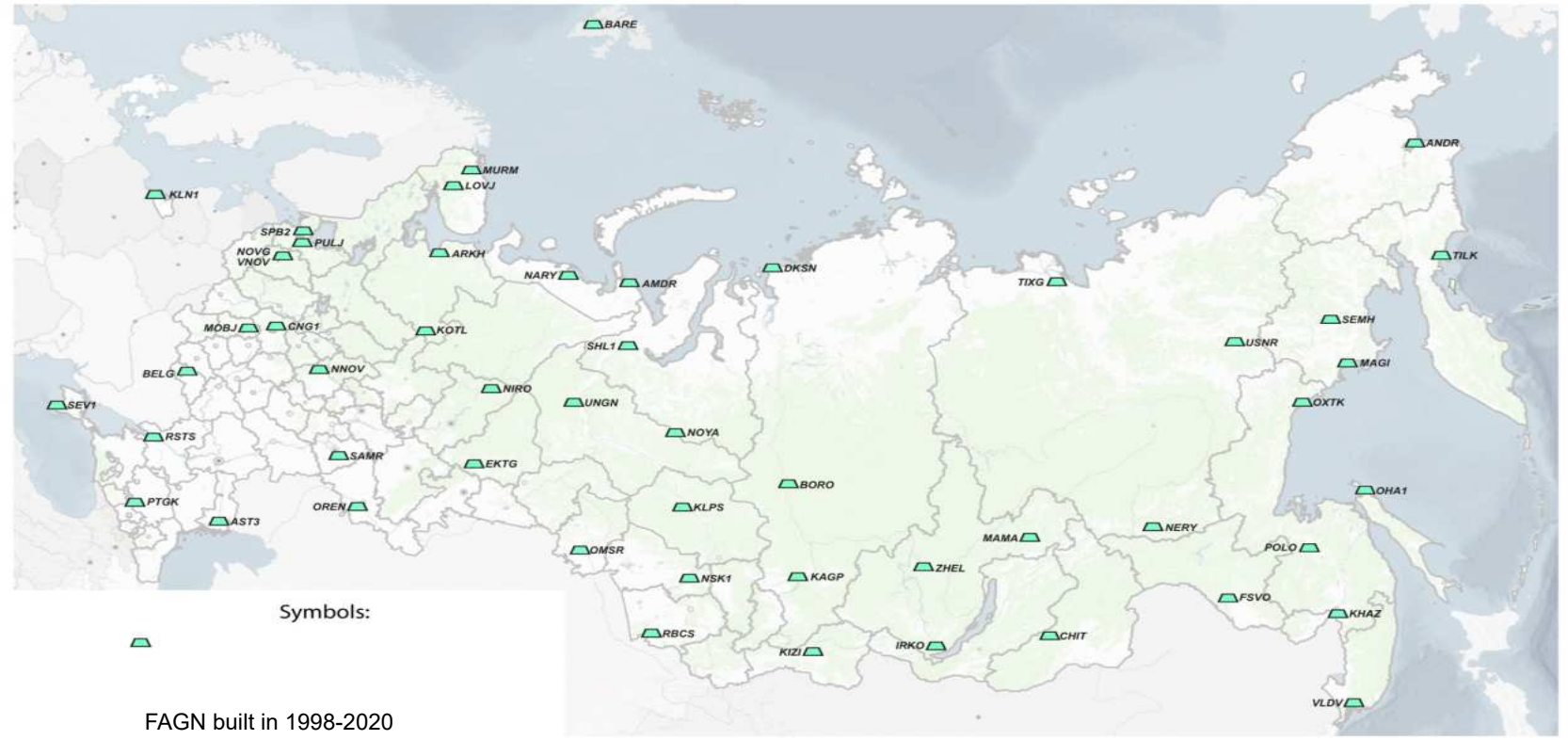


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### Early 2020s

## 45 stations for huge territory is not enough yet.

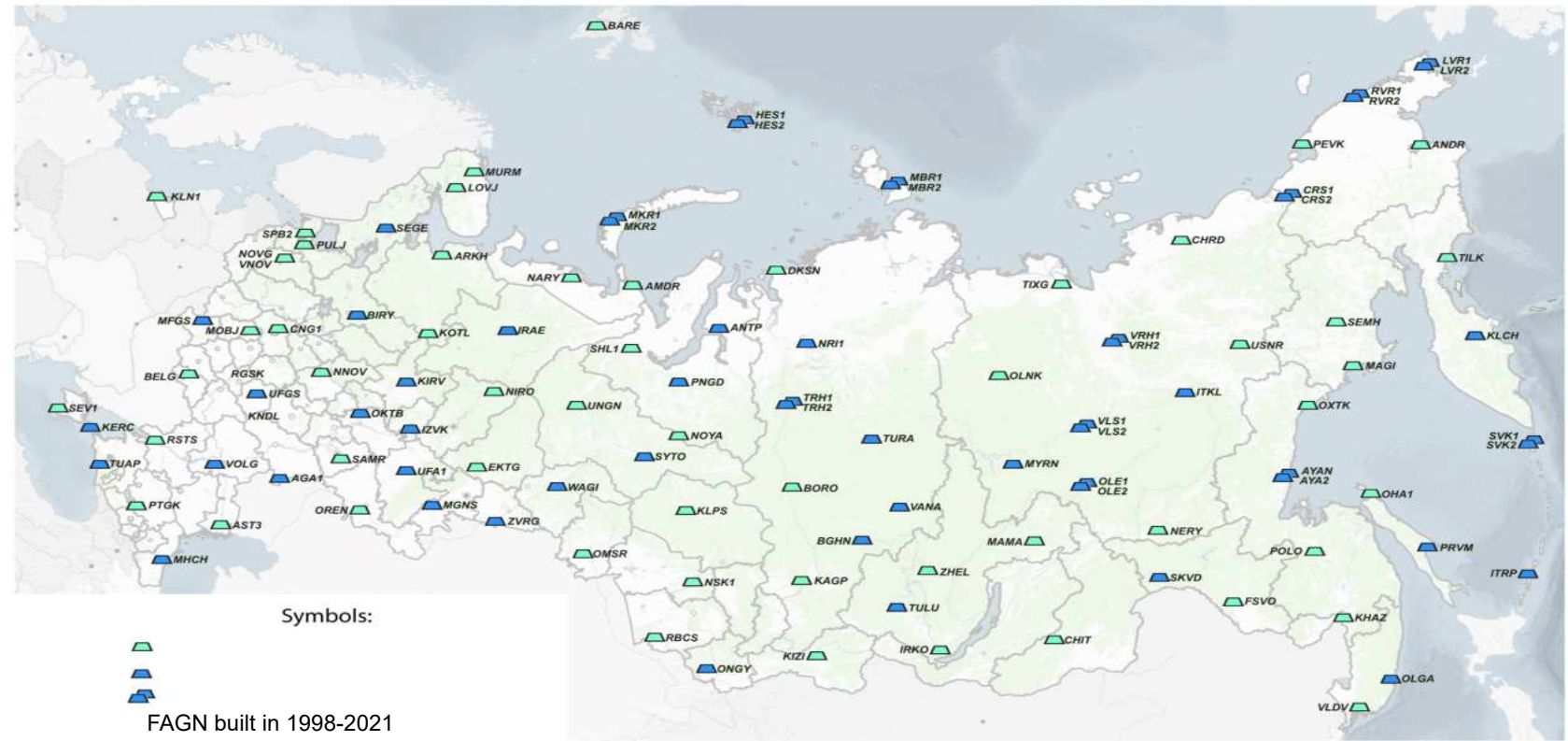





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Symbols:  
 FAGN built in 1998-2021  
 FAGN built in 2021-2023  
 FAGN built in 2022 with two monuments

### Nowadays

### 101 stations

### Average distance between stations is 500 km.

[rgs.cgkipd.ru](http://rgs.cgkipd.ru)



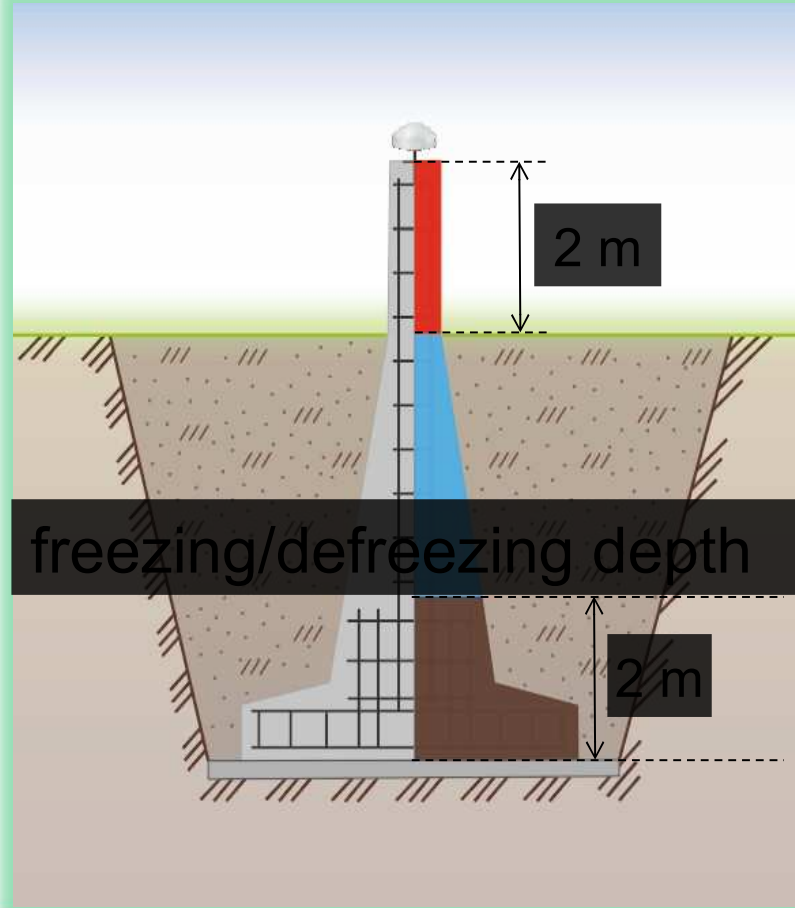
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## Examples of FAGN stations





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## Difficulties and features of creating stations

1. A short period of work. In some places, it takes only 3 months.
2. Some Arctic islands can only be reached once or twice a year by a ship.
3. It was necessary to choose an organization which owns the territories suitable for placing stations. The best option was meteorological stations.
4. According to the recommendations of IGS for the last few years, all monuments have been placed only on the ground. The stations are not being placed on roofs anymore.
5. The stations use cable, mobile or satellite Internet.





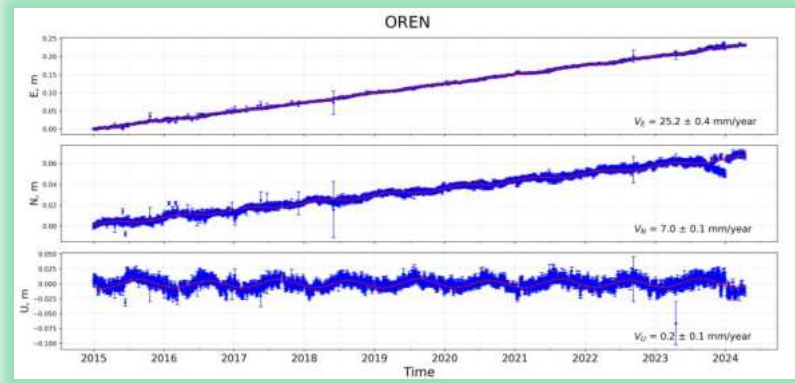
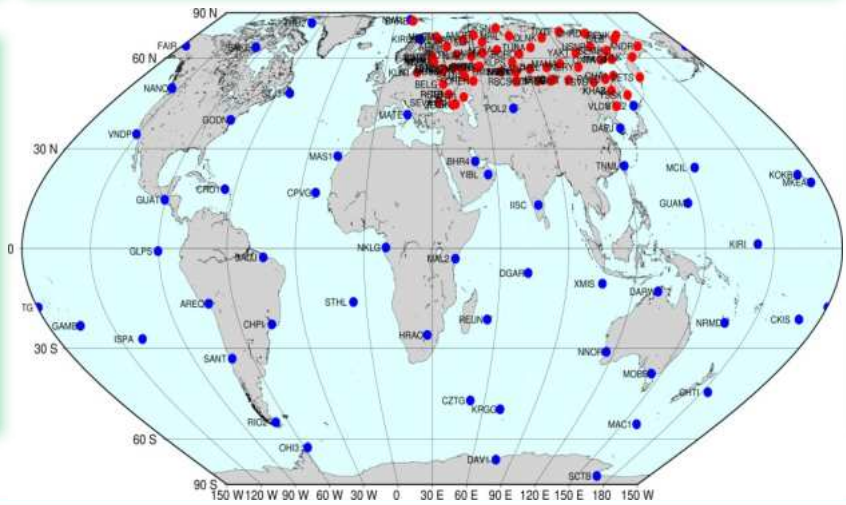
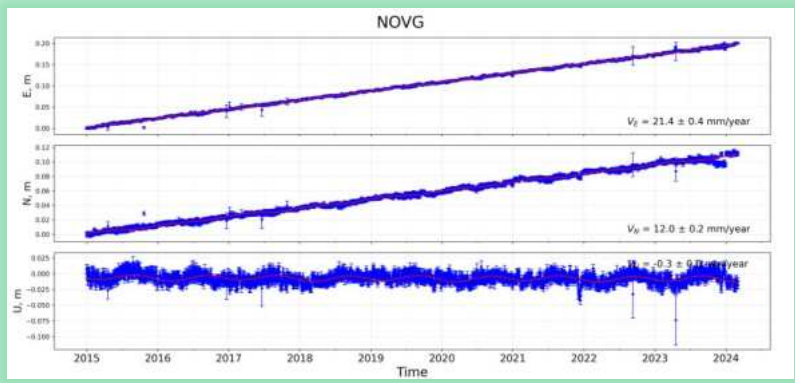
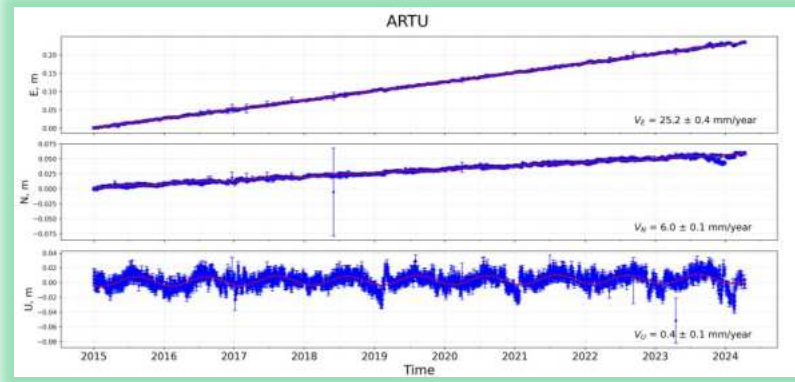
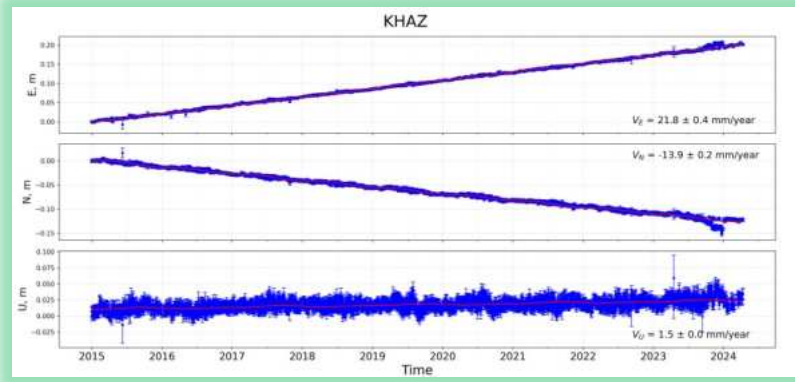
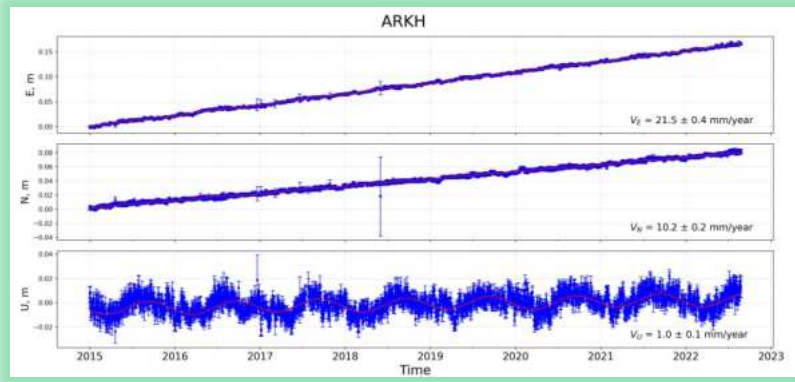
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## Daily GNSS processing



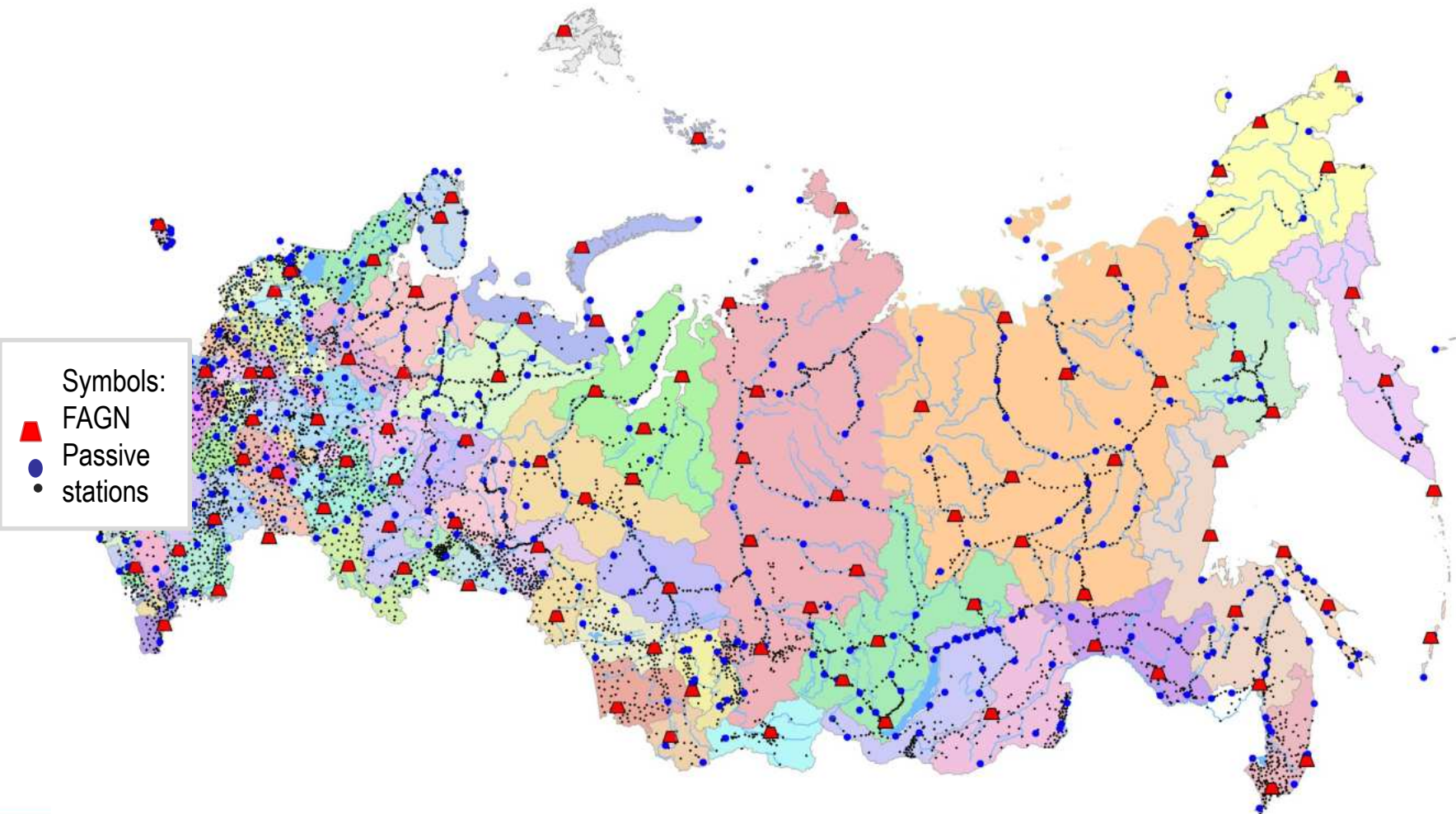


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## Fagn and passive GNSS network

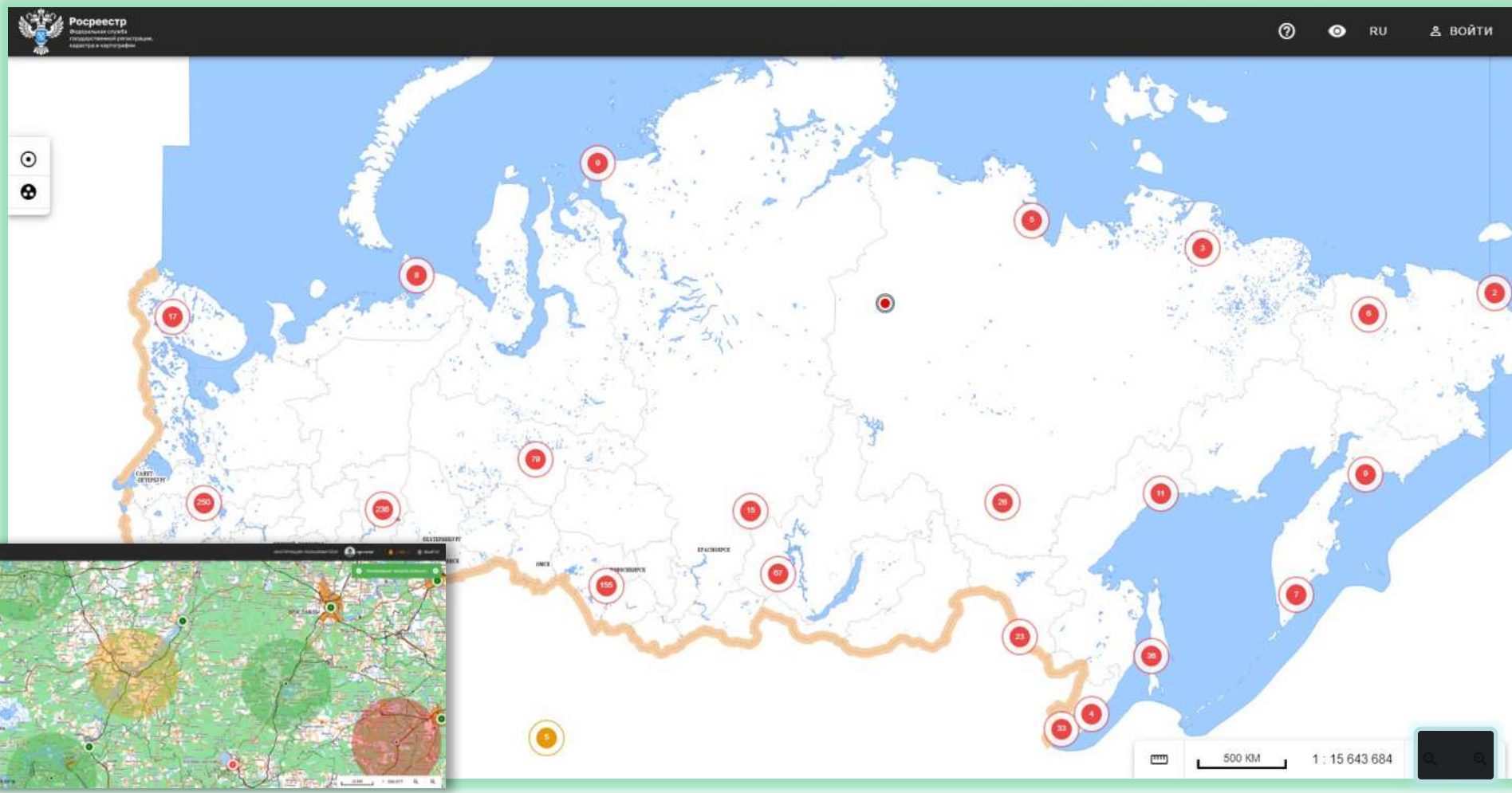


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### GNSS processing Service of FGSN

<https://fsgs.cgkipd.ru>





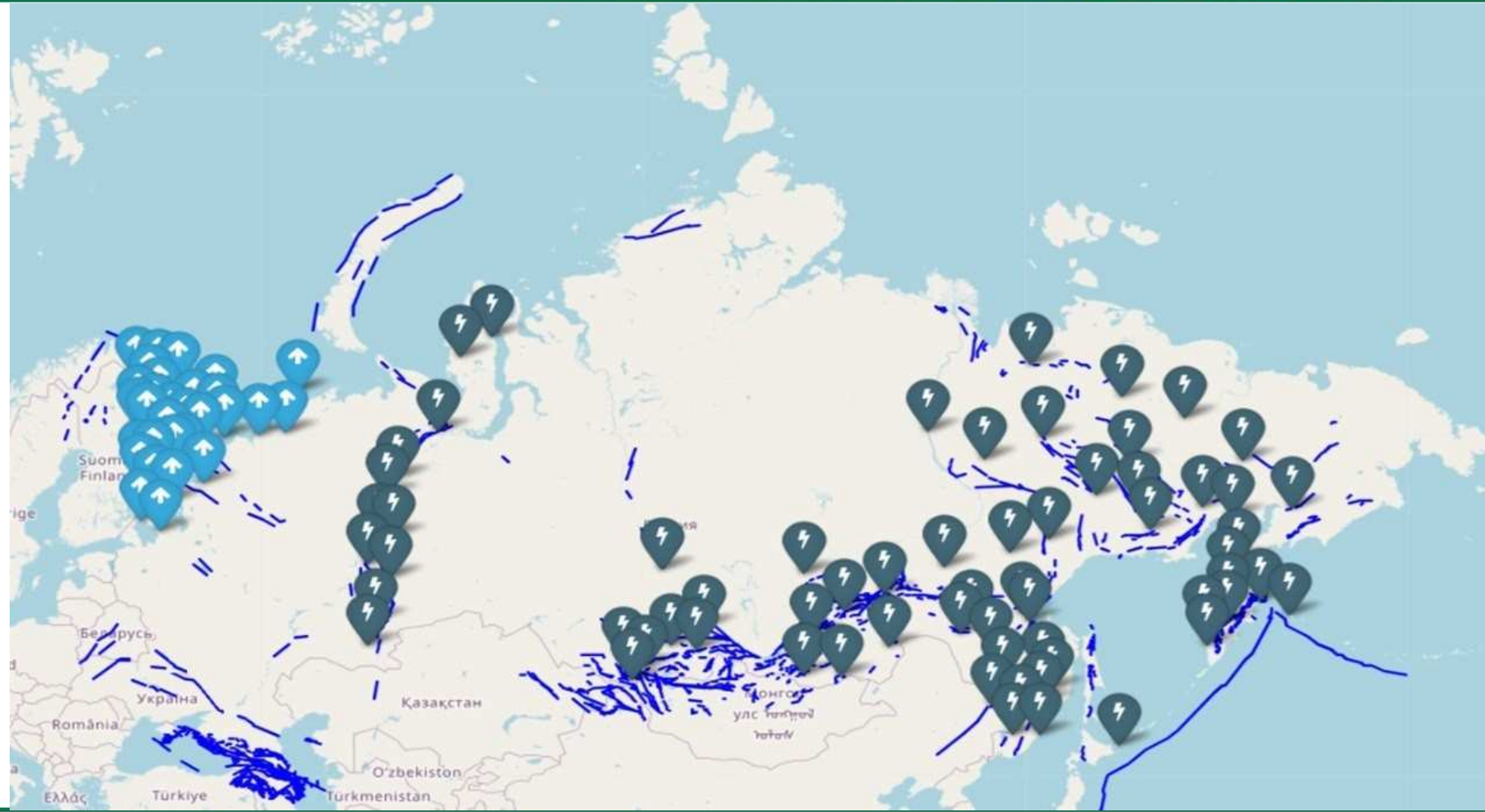
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Planned FAGN  
stations along  
geological faults  
and Glacial isostatic  
adjustment





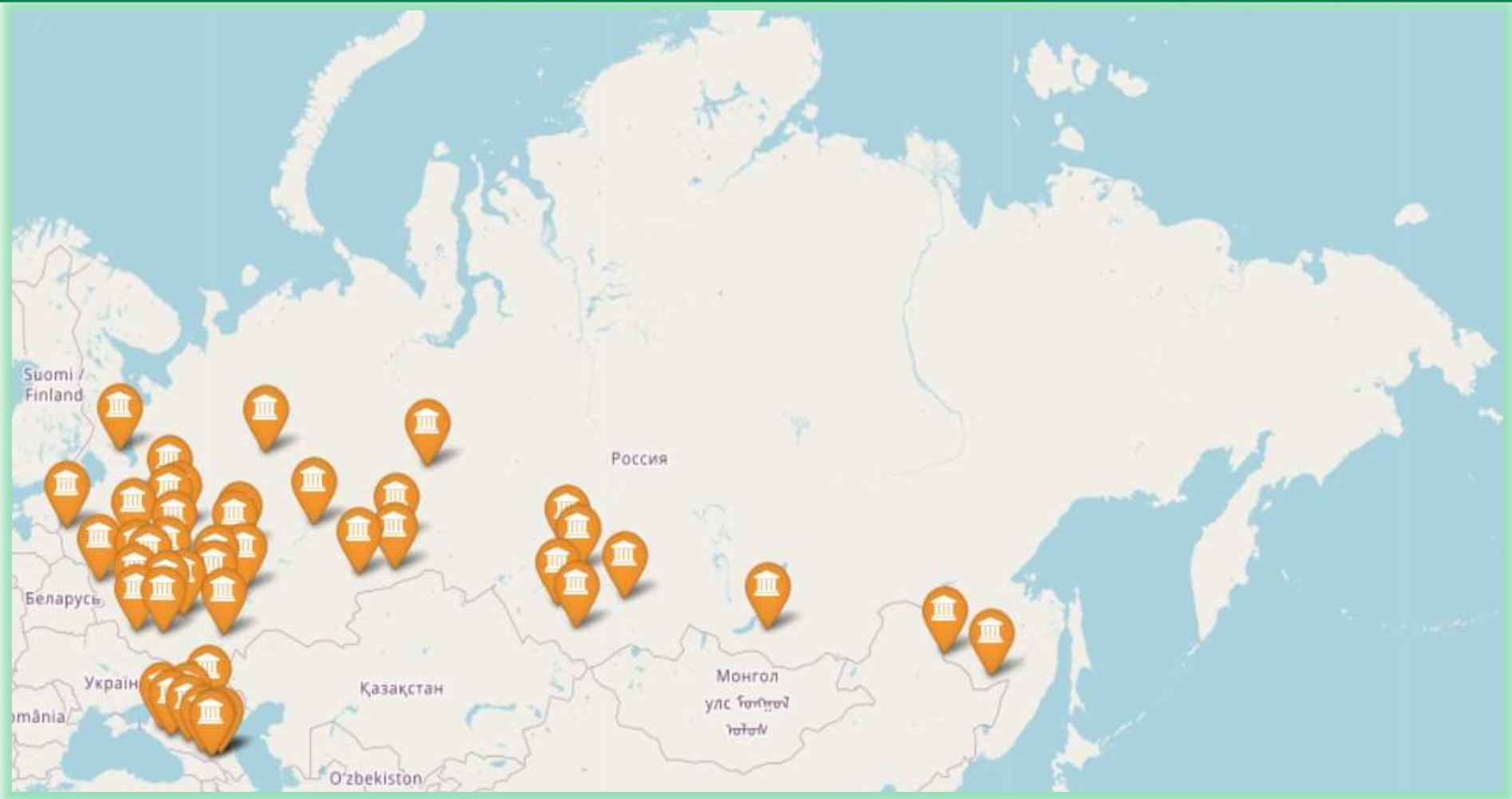
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Planned FAGN  
stations within  
large cities





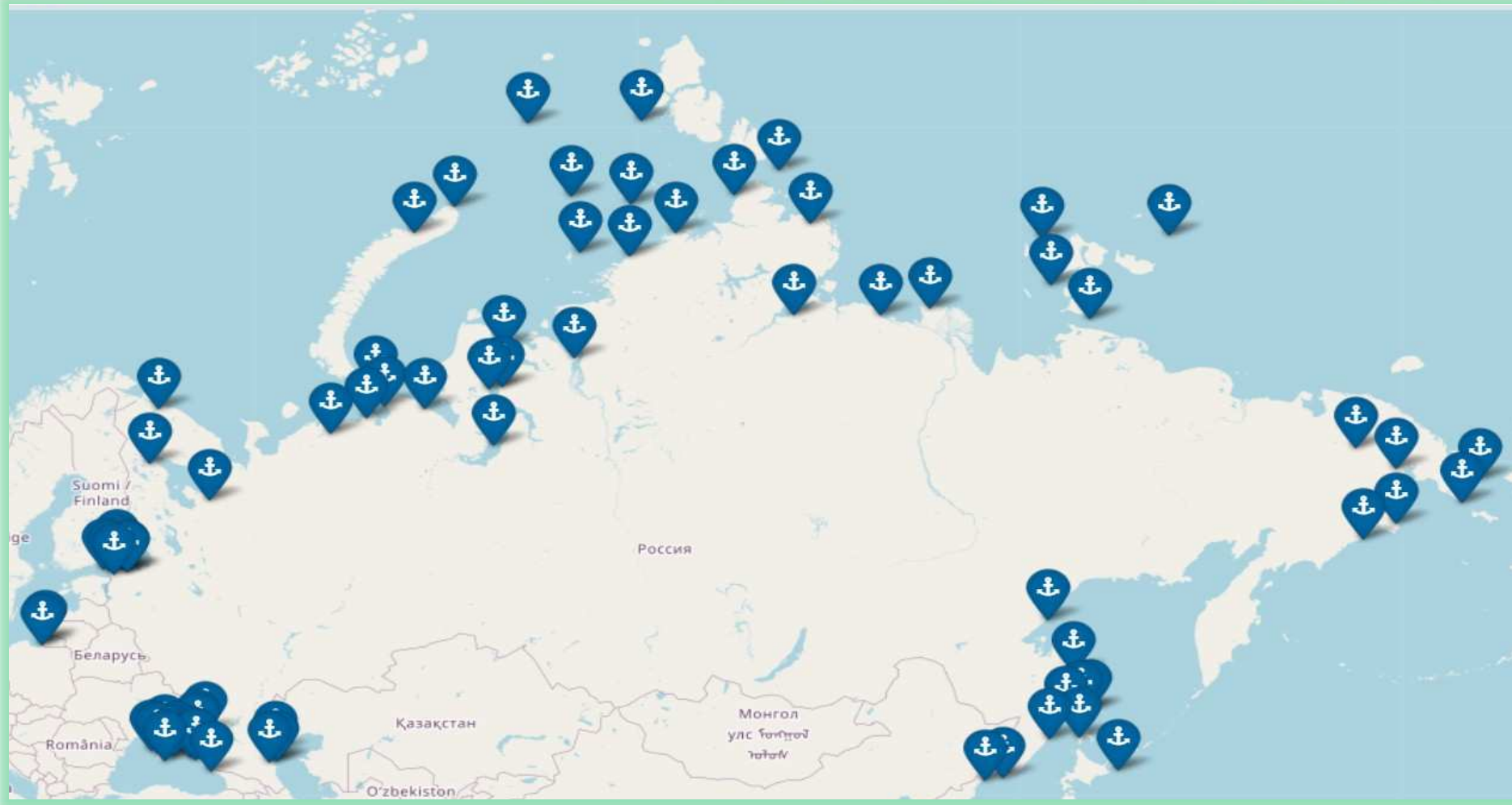
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Planned  
FAGN stations  
on the coast



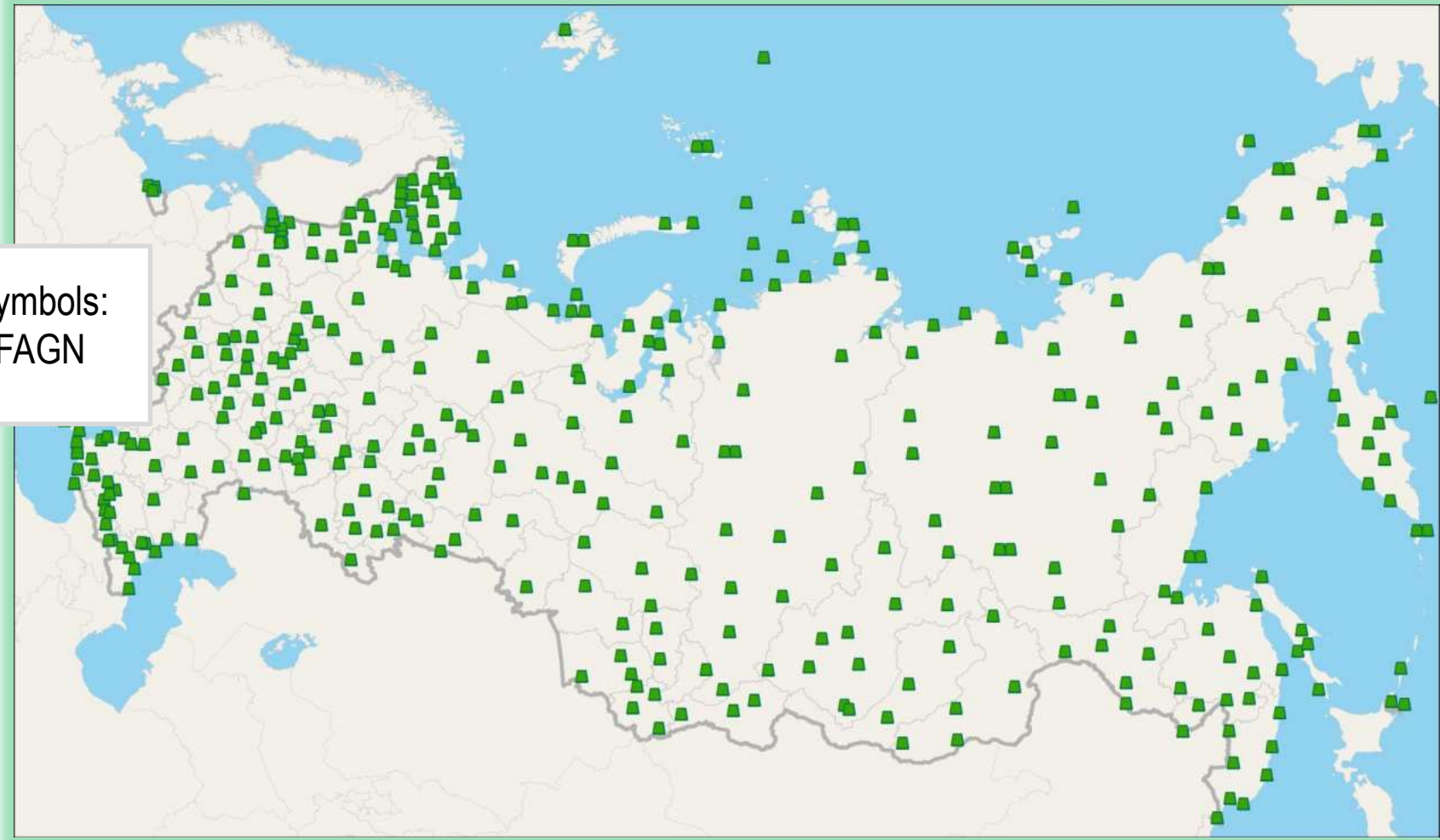


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Symbols:  
■ FAGN

Apprx. 300  
FAGN stations by  
2030





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## Thank you for your attention

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