

# THE PROSPECT OF GAS PRODUCTION AND SPECIFIC FEATURES OF DEVELOPMENT OF THE YAMAL PENINSULA

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(GAZPROM, VNIIGAZ)



## Yamal climate.

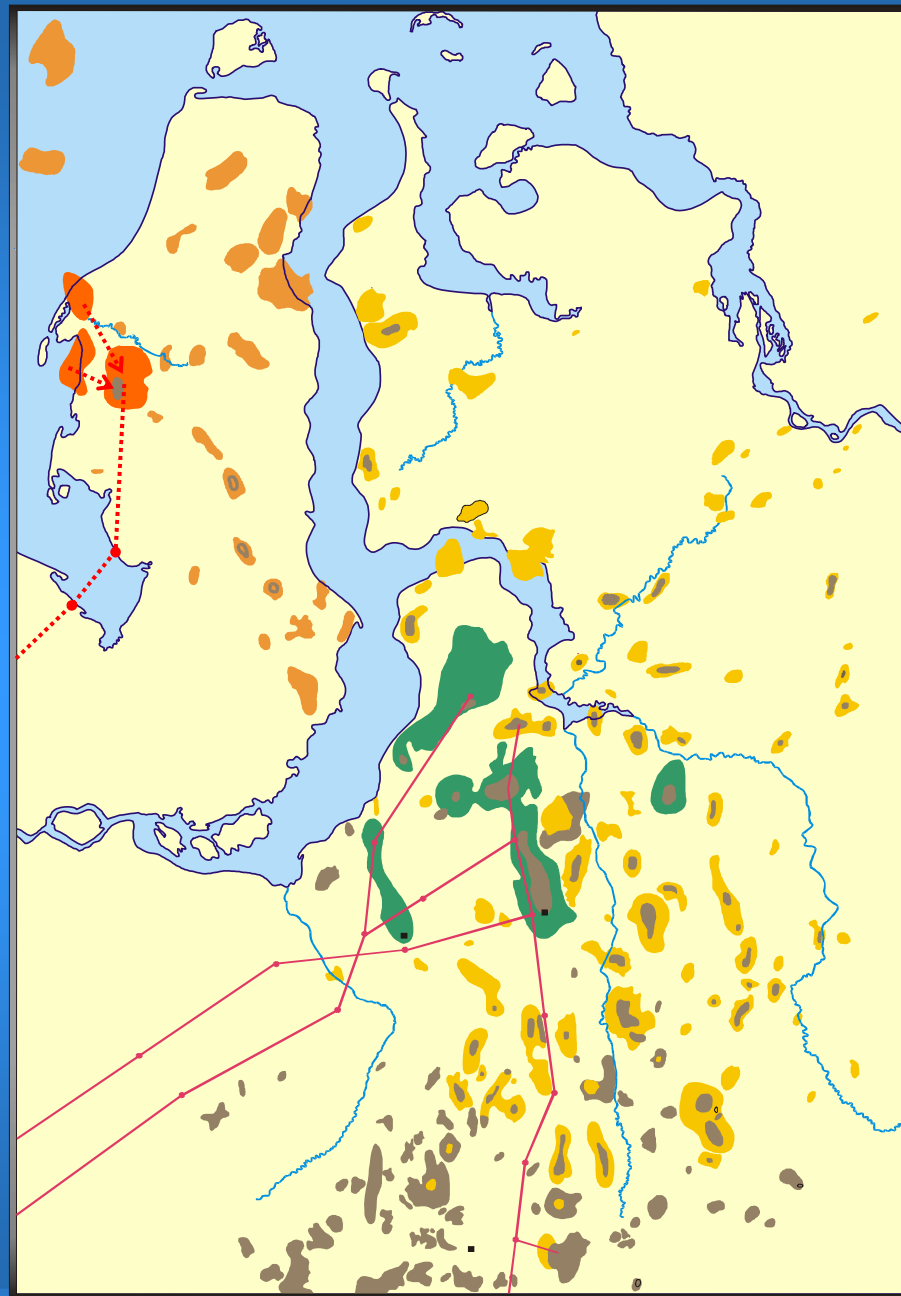
Average year temperature  
– 10 – 11°C.

Average winter temperature  
–22 – 26°C.

Winter duration 240 days.

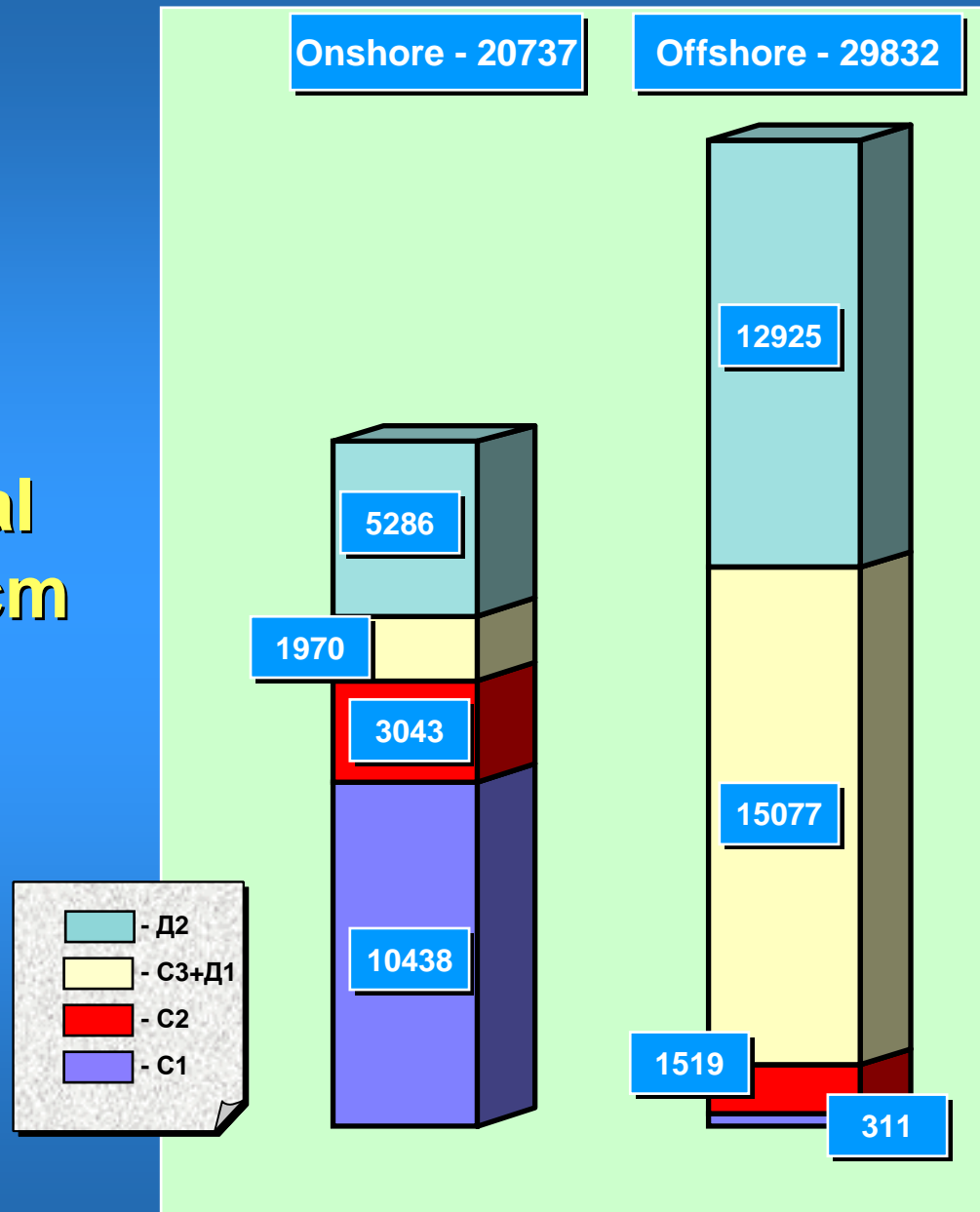
Average summer temperature  
+6 – +9°C. Summer duration 67  
days.

Permafrost thickness 120-300 m,  
Temperature -6°C.  
Weight ice content: from 20 to  
80%.



# Yamal region

## Structure of initial gas resources, Bcm



# The groups of Yamal gas fields

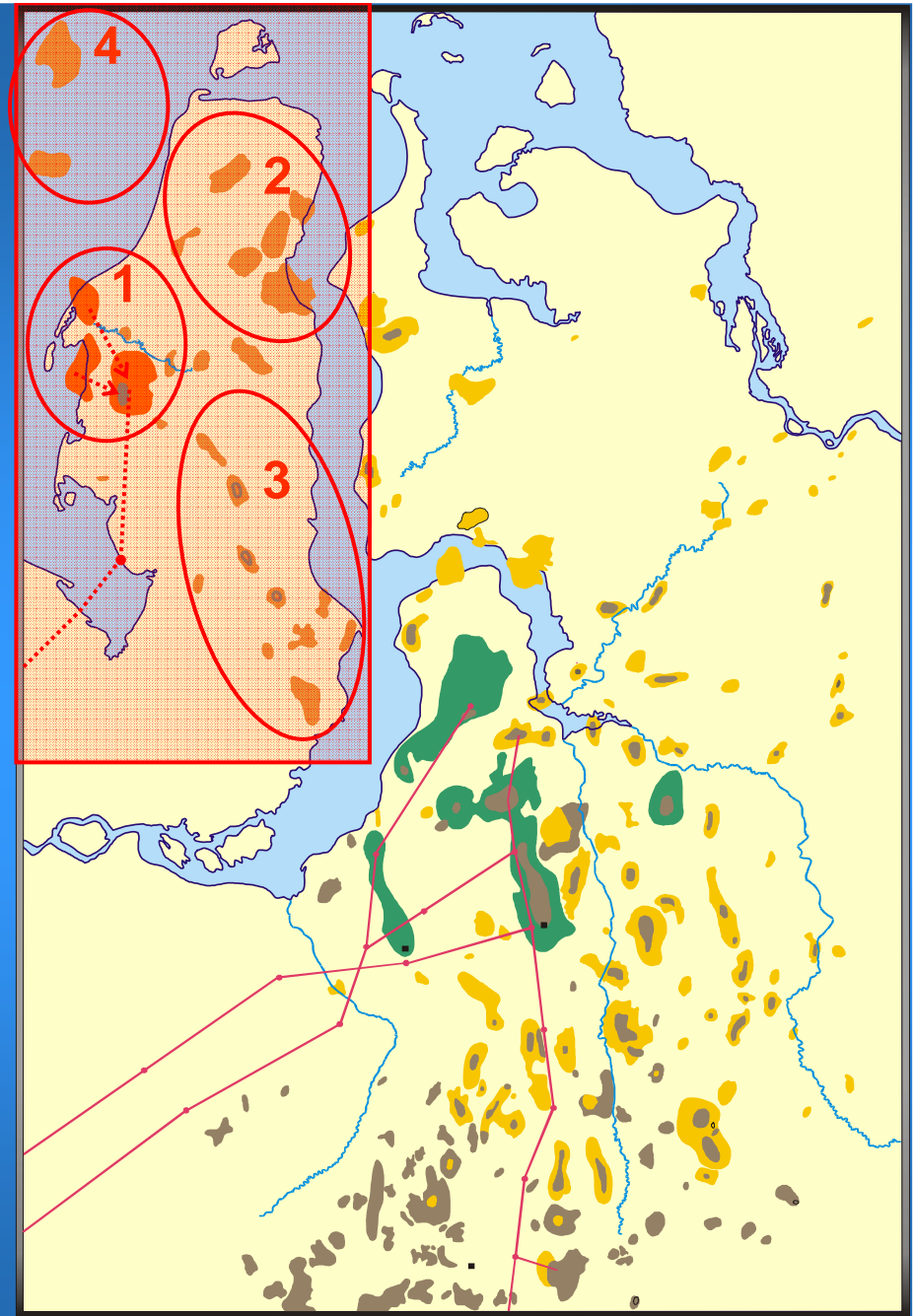
**Bovanenkovo ( 1 )**

(Bovanenkovo, Kharasavei,  
Kruzenshtern)

**Northern (Tambei) ( 2 )**

**Southern ( 3 )**

**Offshore ( 4 )**

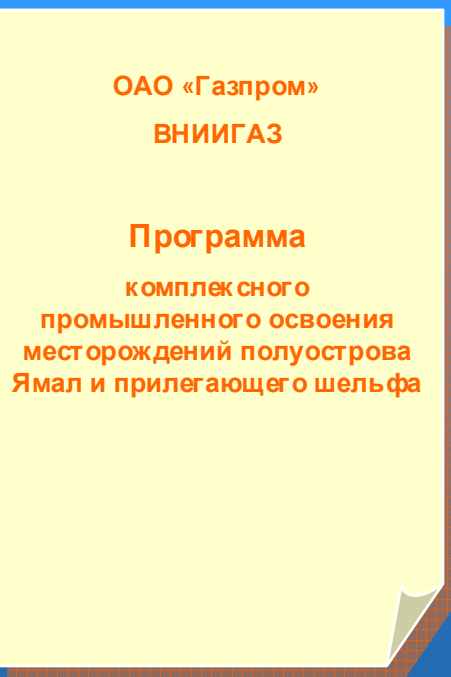


# Strategy of Yamal

## gas fields development

was founded in “Complex commercial development program for Yamal Peninsula and the adjacent offshore areas”.

This Program was developed by VNIIGAZ on the instructions of Gazprom in 1996 – 2002 under leading of prof. G.E.Odisharia and prof. R.M.Ter-Sarkisov.



Program include parts on:

- Geology
- Development
- Transportation
- Economy
- Ecology
- Work program on short-term and long-term perspective.

# Surface stability

## Relative stable:

Activating of cryogenic processes is improbable

The surface is not deformed

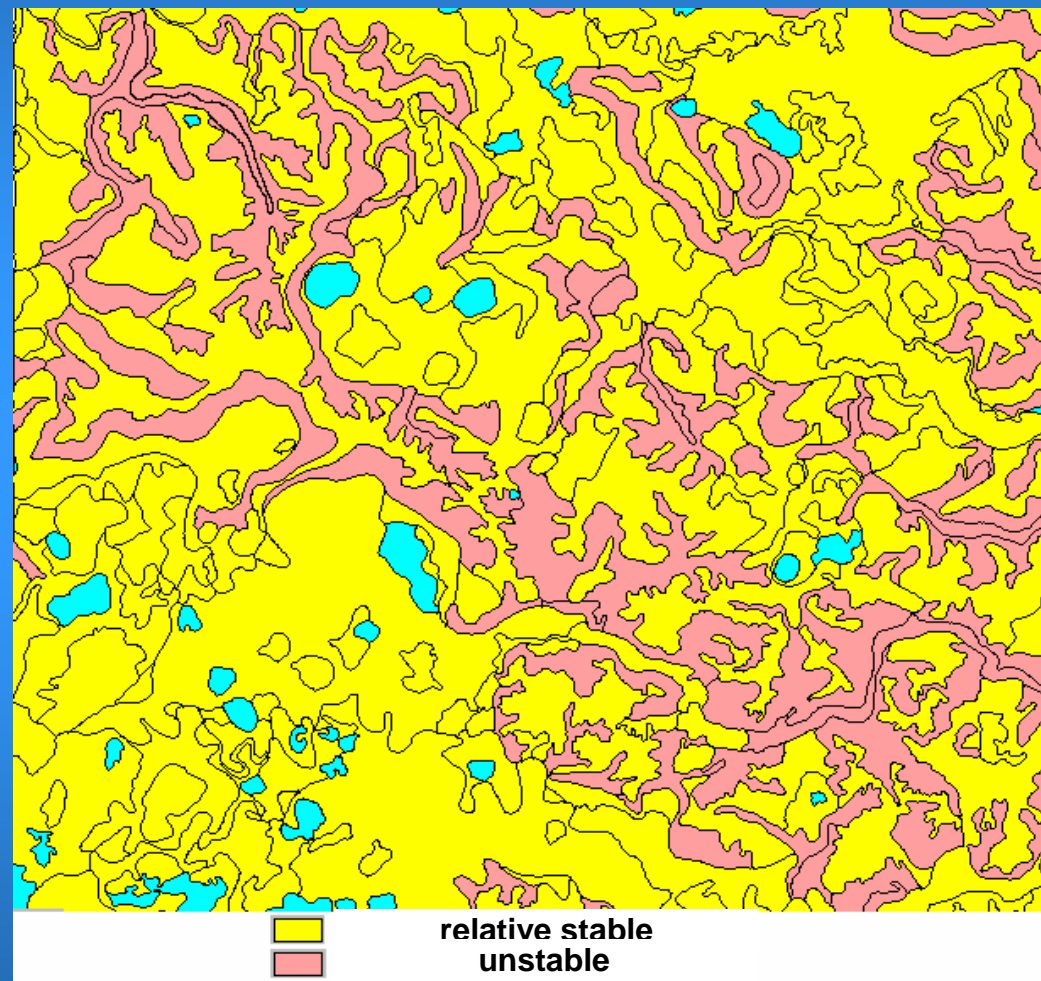
The geologic environment is stable

## Unstable:

Activating of cryogenic processes is probable

The surface may be deformed

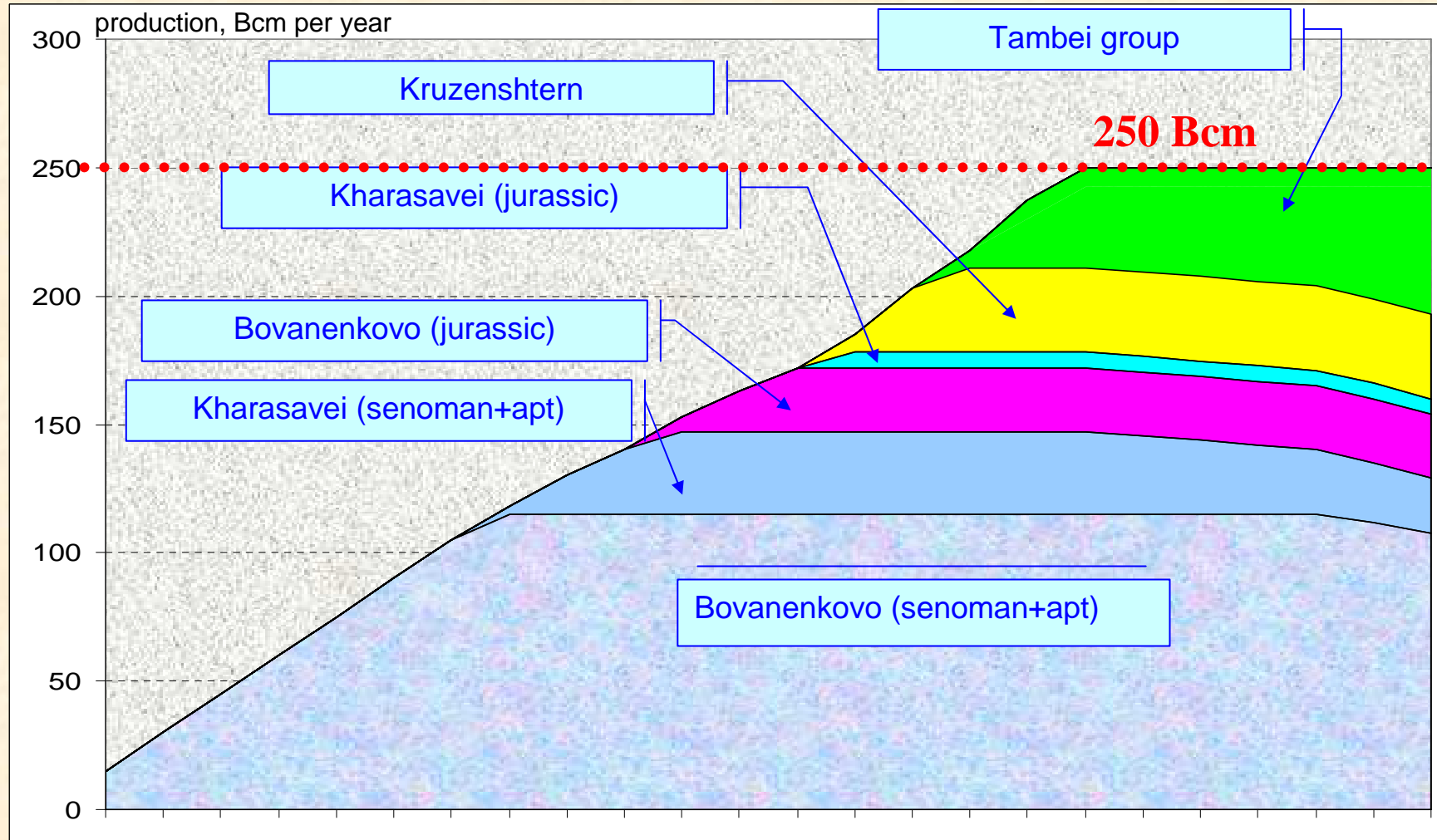
Irreversible variations of the geologic environment are probable



# Probable production of Yamal gas fields groups

Groups	Gas resources, Tcm	Probable production, Bcm
1 Bovanenkovo	8,2	211
2 Northen (Tambei)	3,6	65
3 Southern	1,4	30

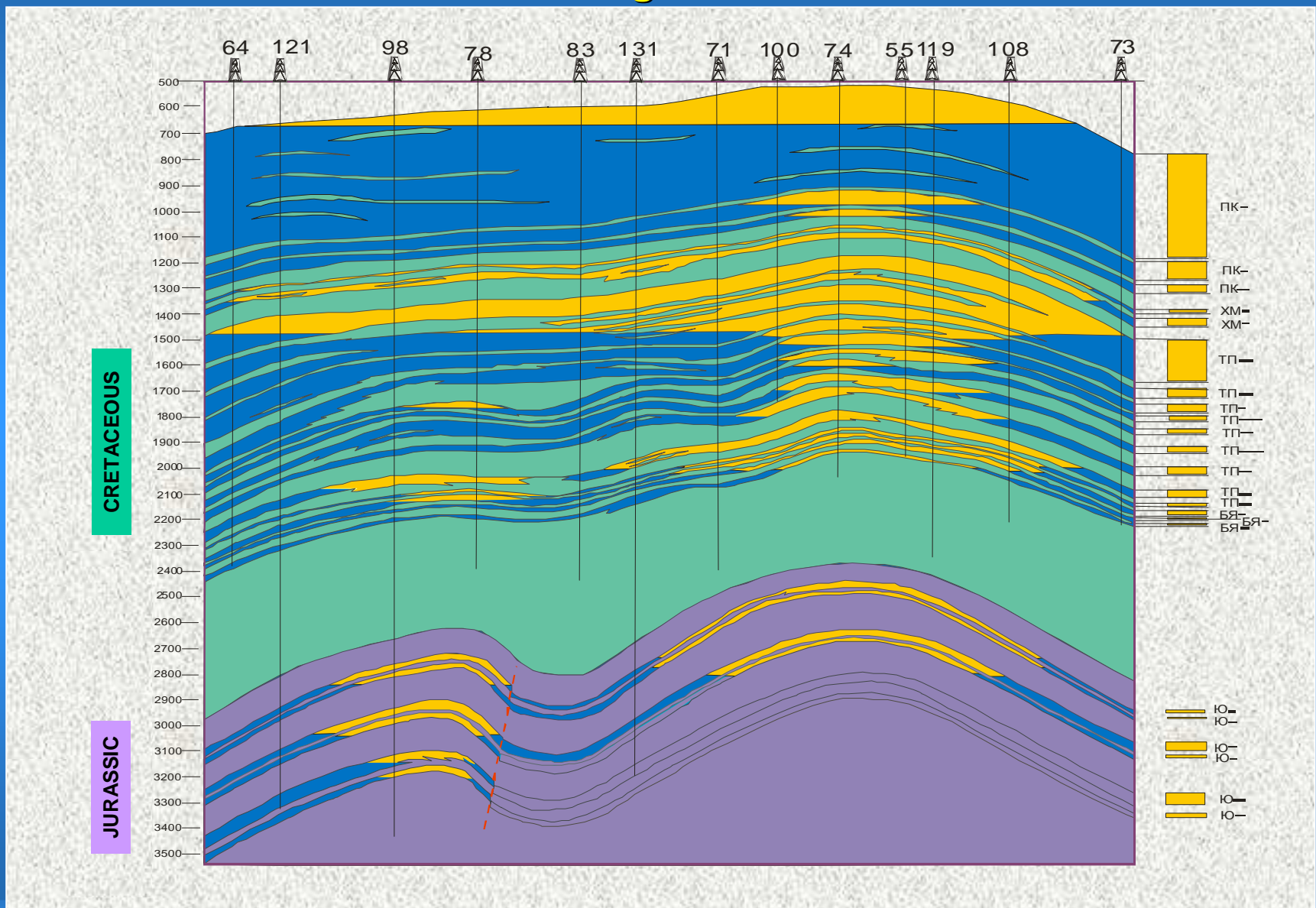
# Probable gas production forecast from Yamal gas fields





# Bovanenkovo gas field

## Geological section



# Bovanenkovo gas field

## Well construction and well clusters location

Ice content < 20% or from 20 to 40%  
and thickness < 10-15 meters.

Well without insulated tubing.

Ice content > 20% and thickness < 25 meters.

Well with insulated tubing.

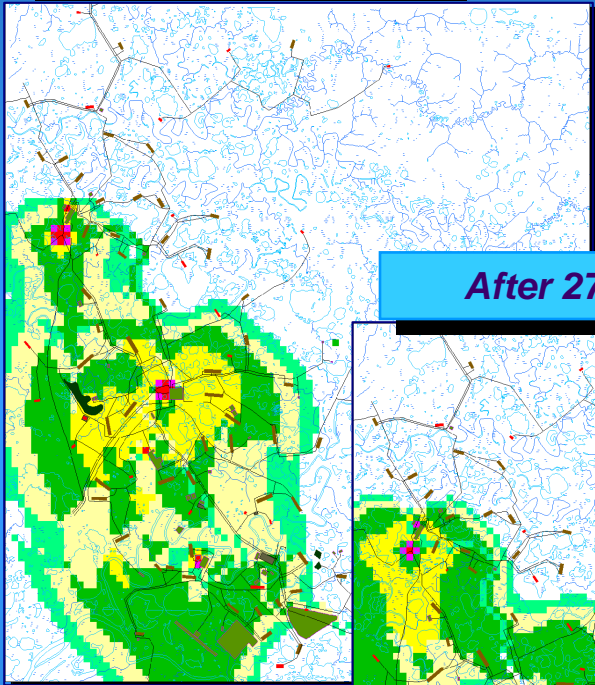
Ice content > 40% and thickness > 25 meters.

- a) Well with insulated tubing and special refrigerants.
- b) Move the well clusters

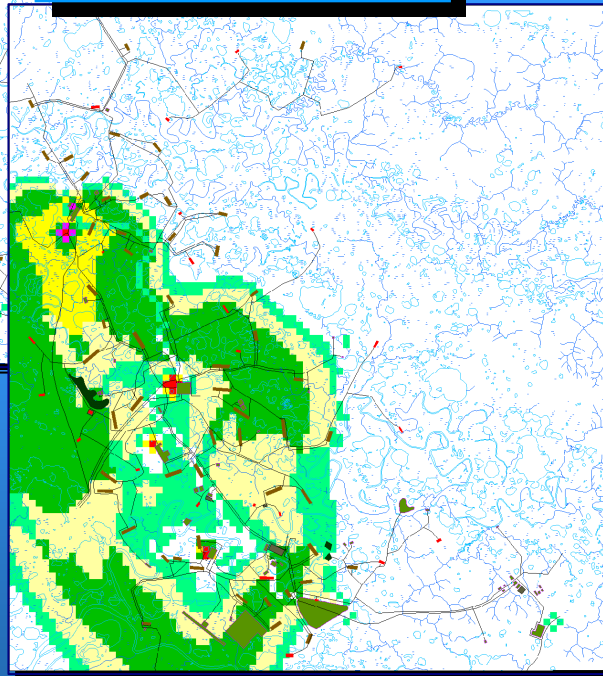


# Yamal environmen

After 18 years



After 27 years



Special programs and models were used for evaluation of reservoir development impact on environmen

# Yamal gas fields

Approaches to the unique reserves of Yamal gas fields are formed with GAZPROM and VNIIGAZ experts experience on the field development in similar conditions. However here we do not talk about simple duplication of already done. Our experience allowed to define in the right way:

- Approaches to exploration of the new gas bearing region – commencing development from major fields which can reliably provide the loading of new system of gas mains;
- Strategy of gas production development – use of the newly constructed infrastructure for further additional exploration and development of new fields;
- Ways to reduce environmental impact upon Yamal – location of wells cluster, equipped by thermal-insulation pipes, and construction of the site structures on the preliminarily selected land plots with minimal ice;
- Directions of increasing reliability of gas production and transmission – preliminarily testing of all the new technologies and equipment in real climatic and site conditions.

# Yamal gas fields

The main problems of the Yamal resource commercial development are related to environmental protection. To tackle this problem JSC Gazprom has worked out an Advanced research program unprecedented by scale and volume of financing. The program is intended for developing environmentally sound technologies, minimizing environmental impacts and preserving and developing unique culture, ethnoses and traditional forms of activity of local nations.

The results obtained made it possible to conclude that the commercial development of Yamal gas fields, including the construction of gas mains and railway, will not lead to irreversible ecological consequences on the peninsula

An aerial photograph of a winding river flowing through a dense forest. The trees are in various stages of autumn, showing shades of green, yellow, and orange. The river meanders through the landscape, creating several loops and curves. In the background, there are more forested areas and some open fields under a clear sky.

**THANK YOU  
FOR ATTENTION**