Lecture 3

**Using remote sensing data in Earth sciences**
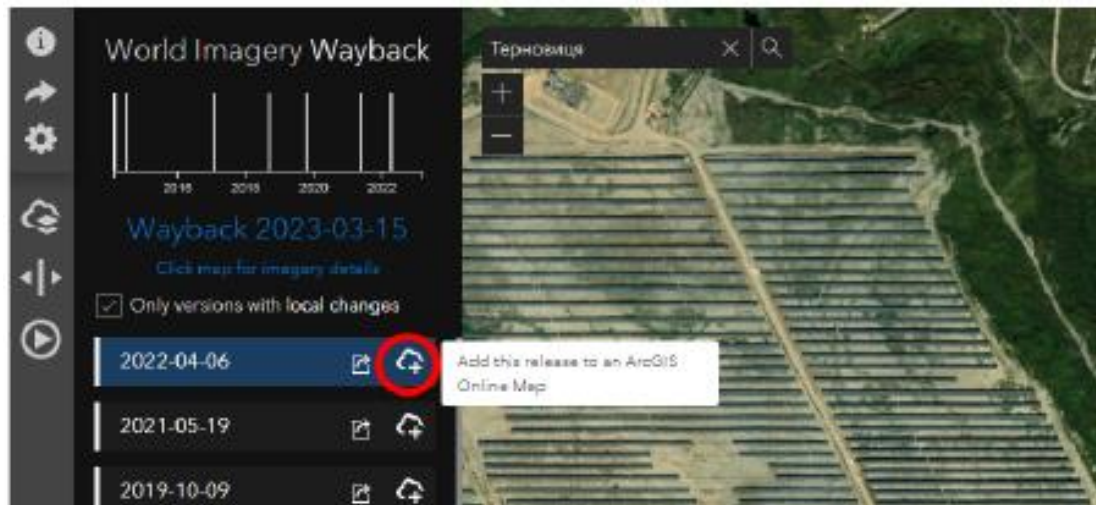
Plan.
1. **Using remote sensing data in meteorology and climatology**
2. **The use of remote sensing data in hydrology**
3. **The use of remote sensing data in geology**

The specialty 103 Earth Sciences (according to the List of branches of knowledge and specialties in which higher education applicants are trained, approved by the Resolution of the Cabinet of Ministers of Ukraine of April 29, 2015 No. 266) or 0532 Earth sciences (according to the International Standard Classification of Education) involves the study of the composition and structure of the Earth, including geology, geophysics, mineralogy, geochemistry, volcanology, seismology and other physical sciences of the Earth, meteorology and other atmospheric sciences (including climate research), hydrology, oceanology.

Remote sensing of the Earth has been actively used by the Earth sciences from the very beginning of its formation.

Application of remote sensing for the study of global climate change

CO$_2$ concentration (ppm)

Years
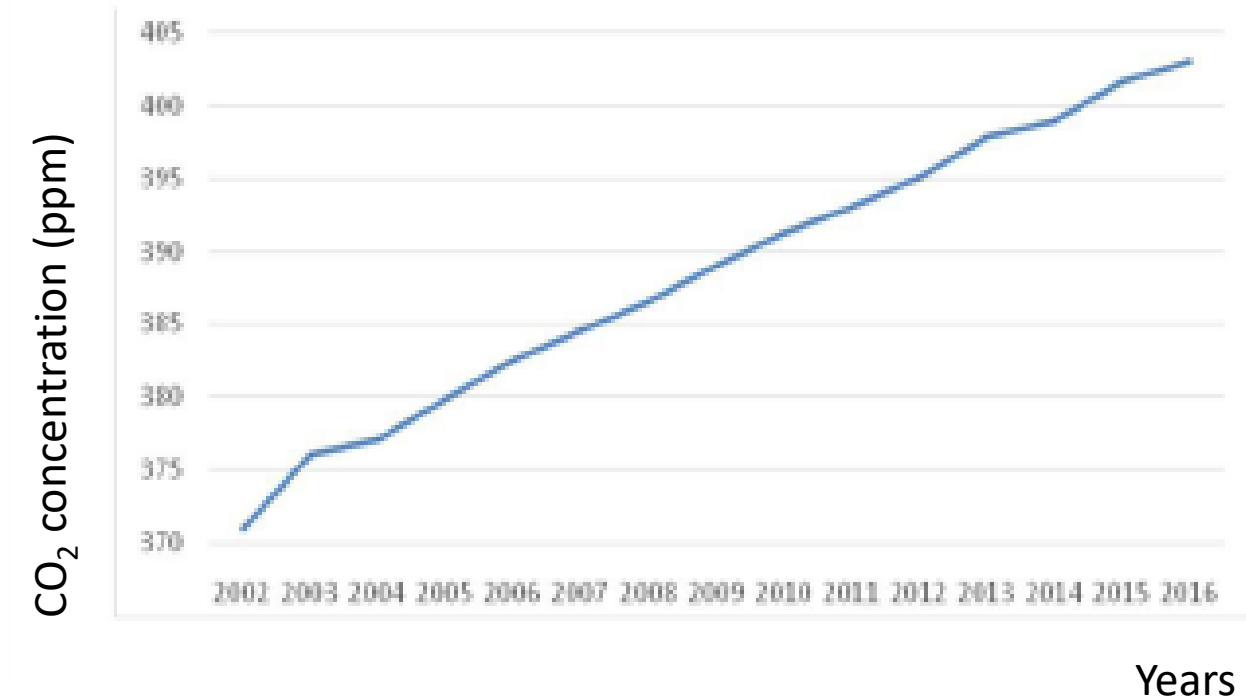
Dynamics of CO$_2$ content in the atmosphere of Ukraine according to AIRS/Aqua satellite data

Construction dynamics of the Troyeschyna housing estate (Kyiv). The area of sand washing is highlighted in red. You can see how the building is being compacted. At the same time, the area of the water surface is decreasing. At the same time, the albedo also increases. Increasing built-up area and the degree of economic development of our planet's surface against the background of decreasing naturalness and shrinking natural landscapes is also one of the causes of global climate change.

1985 p.

2017 p.