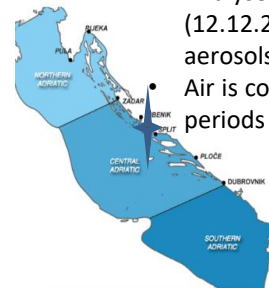


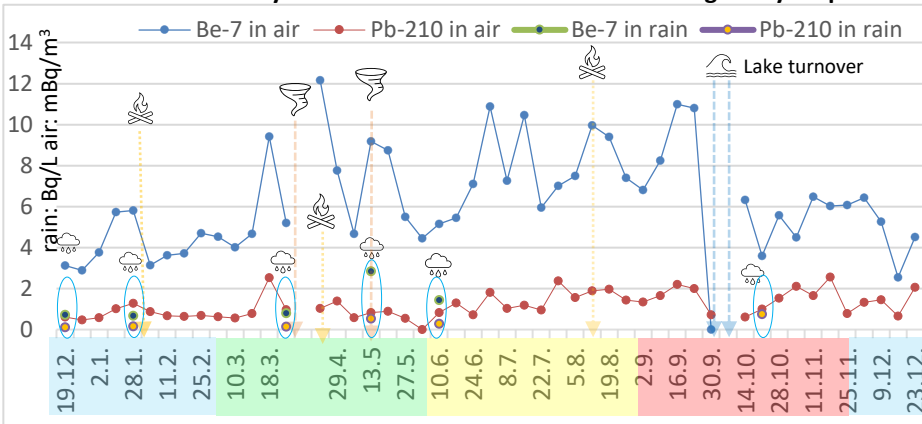
- **MARRES** project (MARine lake (Rogoznica) as a model for EcoSystem functioning in a changing environment) aims to investigate the unique environment (slow exchange of seawater with the sea; atmospheric input is the only source of freshwater) of the marine lake which is an example of highly stratified (permanent anoxia below 9 m depth), and by climate changes affected marine system in the middle of the eastern Adriatic coast (43.53° N, 15.95° E)
- The area of the lake is characterized by the extensive tourism and mariculture, and the low impact of local industrial activities. It is also affected by the combined influence of long-range transport of air masses and local emissions (open-fire events)
- While presence of Be-7 indicates the recent wet or dry deposition from the upper parts of the atmosphere, Pb-210 may be used as a tracer for continental air masses

- Analysed samples are collected throughout one-year period (12.12.2019. - 23.12.2020.) for radioactivity measurements of aerosols, rainwater and lake water
- Air is collected through glass fiber filters during a one-week sampling periods with the air flow rate of 2.3 m³/h (≈ 386.4 m³ per filter)
- Rainwater is continuously collected, then, together with lake water, total collected quantity is taken for measurements after bigger rain events
- Activity concentrations are determined by gamma spectrometry using High Purity Germanium detectors



AIR		RAINWATER	
a(Be-7)	2.6 - 12.2 mBq/m ³	a(Be-7)	0.7-2.9 Bq/L
a(Pb-210)	0.5 - 2.6 mBq/m ³	a(Pb-210)	0.1 - 0.8 Bq/L
Be-7/Pb-210	2.1 - 11.8		
LAKE WATER COLUMN			
PM<2.5	2.65 - 16.41 µg/m ³	K-40 activity concentrations	
Mass	0.73 - 11.59 mg	surface	9 - 20 Bq/L
Temperature	7.3 - 27.6 °C	Subsurface	11.7 - 15.4 Bq/L
Air pressure	1001 - 1025 hPa	chemocline	11.8 - 12.1 Bq/L

Be-7 and Pb-210 activity concentrations in aerosol filters during one-year period



- Seasonal variations visible – **spring** and **summer** / **fall** peaks, **winter** minimum
- The results are found to be moderately correlated with PM2.5 masses (R² is 0.34 for **Be-7** and 0.36 for **Pb-210**)
- aerosol filter results can be related to the long-range transport of air masses like income from Sahara ☁️ ↑(Be) ↑(Pb), to the near open-fire events 🔥 ↑↑, to scavenge by rain events ☁️ ↓↓ → thus **Be-7** and **Pb-210** are observed in rainwater
- in the lake water column **Be-7** and **Pb-210** rarely present (surface only, after rain events), K-40 always present indicating salinity of water (dilution by rain)