

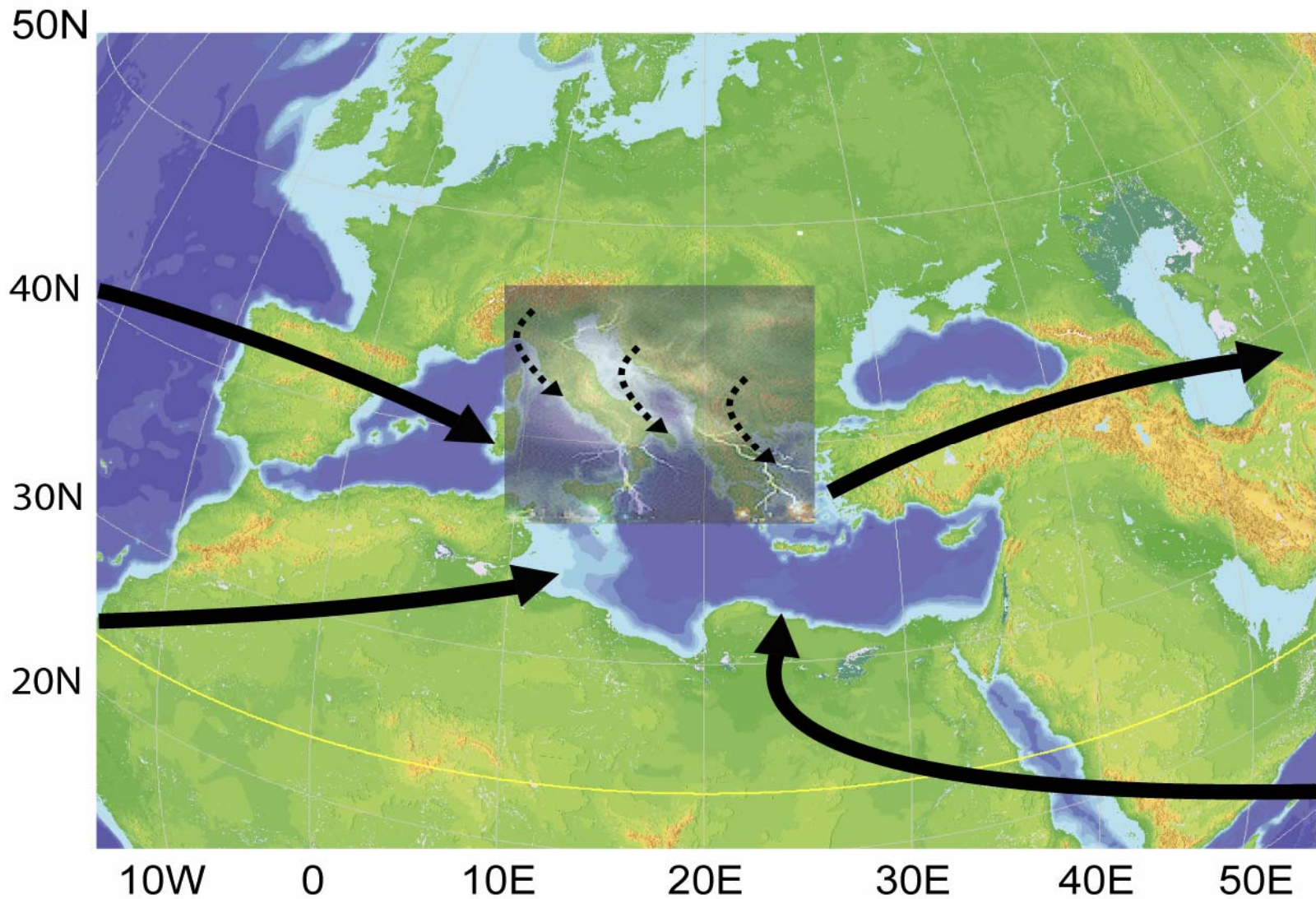
# Free Tropospheric Oxidation Capacity (FreeTOx)

## Objectives:

- Determine the rates at which natural and anthropogenic compounds are converted by oxidation processes in the upper troposphere
- Determine the potential for long-range pollution transport and the formation of ozone
- Measure HOx to quantify the major sources and sinks and test model calculations

Focus on S-Europe where large-scale pollution transports converge during conditions of high photochemical activity

# Region of operation



# Measurements

<b>Parameter</b>	<b>Technique</b>
OH, HO <sub>2</sub>	Laser Induced Fluorescence
ROx	Peroxy Radical Amplifier
H <sub>2</sub> O <sub>2</sub> , HCHO, CO, CH <sub>4</sub>	Quantum Cascade Laser Spectroscopy
Total Peroxide	Dual Enzym Fluorescence
NO, NO <sub>x</sub> , NO <sub>y</sub> , O <sub>3</sub>	Chemiluminescence
HNO <sub>3</sub> , HONO, HO <sub>2</sub> NO <sub>2</sub>	Chemical Ionization Mass Spectrometry
CO <sub>2</sub>	Infrared Spectroscopy
VOC	Gas Chromatograph - Mass Spectrometry (in situ)
OVOC	Proton-Transfer Mass Spectrometry
PAN	Gas chromatography
H <sub>2</sub> O	Infrared Spectroscopy (>100 ppmv), Lyman- $\alpha$ fluorescence (< 100 ppmv)
Actinic radiation	Spectroradiometry, filter radiometry
Aerosols	CN counters, Optical Particle Counter

# Partners

- Max Planck Institute for Chemistry, Mainz.
- Research Centre Jülich

Additional partners?

- Universities of Bremen, Frankfurt, Heidelberg
- Institute for Tropospheric Research, Leipzig
- DLR Oberpfaffenhofen