

Climate change – Jülich expertise

Stratosphere

- Climate-relevant processes in the atmosphere
- Interactions between ozone and climate
- Water vapour and ice clouds
- Remote sensing of the atmosphere
- Development of measuring instruments

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Troposphere

- Air quality/air pollution
- Chemistry of the atmosphere
- Particle formation/atmospheric aerosols
- Degradation of trace gases/self-purification of the atmosphere
- Anthropogenic and biogenic emissions
- Global long-term measurements of atmospheric trace substances
- Chemical weather forecasts/reactive greenhouse gases/modelling of chemical and transport processes
- Detection techniques for atmospheric, reactive trace substances

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Agrosphere

- Impact of climate change on soils and ecosystem services
- Examination of the impact on material cycles and exchange processes between soil, plants, and the atmosphere
- Modelling of water, energy, and material cycles as well as their interactions as part of climate change and changing land use

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Plant Sciences

- Adapting plants to climate change
- Photosynthesis, growth, and quality of plants in view of future CO₂ concentrations
- Quantification and modelling of root structures and function under variable soil and climate conditions
- Carbon fluxes in plants and exudation in soils
- Influence of increased CO₂ on carbon fluxes and nutrient budget of crop plants
- Aircraft- and satellite-borne remote sensing of photosynthesis and stress in plants and vegetation

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Energy Technologies and Systems

- Technical and economic options
- Perception and acceptance of measures
- Governance of systems

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