ENV-716

# Active Remote Sensing of the Atmosphere

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| Cursus | Sem. | Type |
|---|---|---|
| Civil & Environmental Engineering | | Opt. |

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|---|---|
| Language of teaching | English |
| Credits | 4 |
| Session | |
| Exam | Multiple |
| Workload | 120h |
| **Hours** | **56** |
| Courses | 28 |
| Exercises | 19 |
| TP | 9 |
| **Number of positions** | |

## Frequency

Every 2 years

## Remark

Next time: Fall 2021. Min. 5 persons

## Summary

Provide the students the basics to understand and analyze remotely sensed measurements from active systems like lidar (in particular temperature, humidity, aerosols) and radar (weather and cloud radar, wind profiler).

## Content

Optical remote sensing:
1. Structure and composition of the atmosphere
2. Light propagation in the atmosphere
3. Fundamentals of the lidar techniques
4. Atmospheric lidar types
5. Basics of the lidar hardware
6. Long open-path techniques

Microwave remote sensing:
1. Precipitation and cloud microphysics
2. Principle of weather radar
3. Multiparameter weather radar
4. Sources of error
5. Cloud radar
6. Wind profiler

## Keywords

LIDAR, RADAR, atmospheric profiling