

## Lectures 26/28

### Review of remote sensing of the atmosphere and oceans

#### Clouds:

*Cloud liquid water content:*

Microwave => Lecture 14

*Cloud amount/coverage:*

Visible+ IR => Lab 9

*Cloud type:*

IR (ISCCP project) => Lab 9

*Cloud particle size distribution and optical depth:*

MODIS retrieval technique => Lecture 17 and Lab 9

*Cloud thermodynamic phase:*

MODIS retrieval technique => Lecture 17

*Cloud-top temperature:*

IR imagery => Homework 3, Lab 9

*Cloud-top pressure:*

O<sub>2</sub> absorption technique” and “CO<sub>2</sub> slicing technique => Homework 3,  
Lecture 18-19

*Cloud height and cloud detection:*

Lidars/Radars => Lectures 21, 23 and Lab 12

#### Aerosols:

*Aerosol detection:*

TOMS AI => Lecture 11

*Aerosol optical depth/particle size distribution/Angstrom exponent:*

Sunphotometers and satellite Visible (AVHRR, SeaWiFS, MODIS) =>  
Lab 5, Lectures 10, 13 and Homework 2

*Stratospheric aerosol optical depth:*

Limb visible technique (SAGE) => Homework2

*Aerosol extinction-to-backscattering ratio and extinction profiles:*

Elastic lidar and Doppler lidar => Lecture 22 and 23

## Water vapor:

Integrated column from microwave => Lecture 14

Profile from IR sounding => Lecture 18,19

Profile from Raman lidar => Lab 12 and Lecture 23

## Ozone and trace gases:

### *Ozone amount:*

UV downlooking spectrometer (TOMS) => Lecture 11 and Lab 6

### *Ozone profile:*

Sounding (SCIAMACHY) => Lectures 18, 19 and Lab 10

### *Trace gases:*

Sounding techniques => Lectures 18, 19

DIAL Lidars => Lecture 22, G: 8.5

## Atmospheric temperature

IR sounding techniques => Lecture 18, 19 and Lab 10

## Precipitation

Visible/IR techniques => Lecture 16

Microwave techniques => Lecture 16

Radar => Lecture 21 and Lab 11

## Atmospheric winds

Doppler radar => Lecture 25

## Sea Surface Temperature

IR split-window technique => Lecture 15 and Lab 8

Microwave techniques => Lecture 15 and Lab 8

## Ocean color mapping

Visible imagery (SeaWiFS) => Lectures 5, 13 and Lab 7

## Sea ice

Passive microwave => Lecture 5 and Lab 3

Active microwave => Lecture 24

## Ocean currents, wind and sea surface height

Visible imagery (SeaWiFS and MODIS) => Lecture 13

Active microwave => Lectures 20, 24