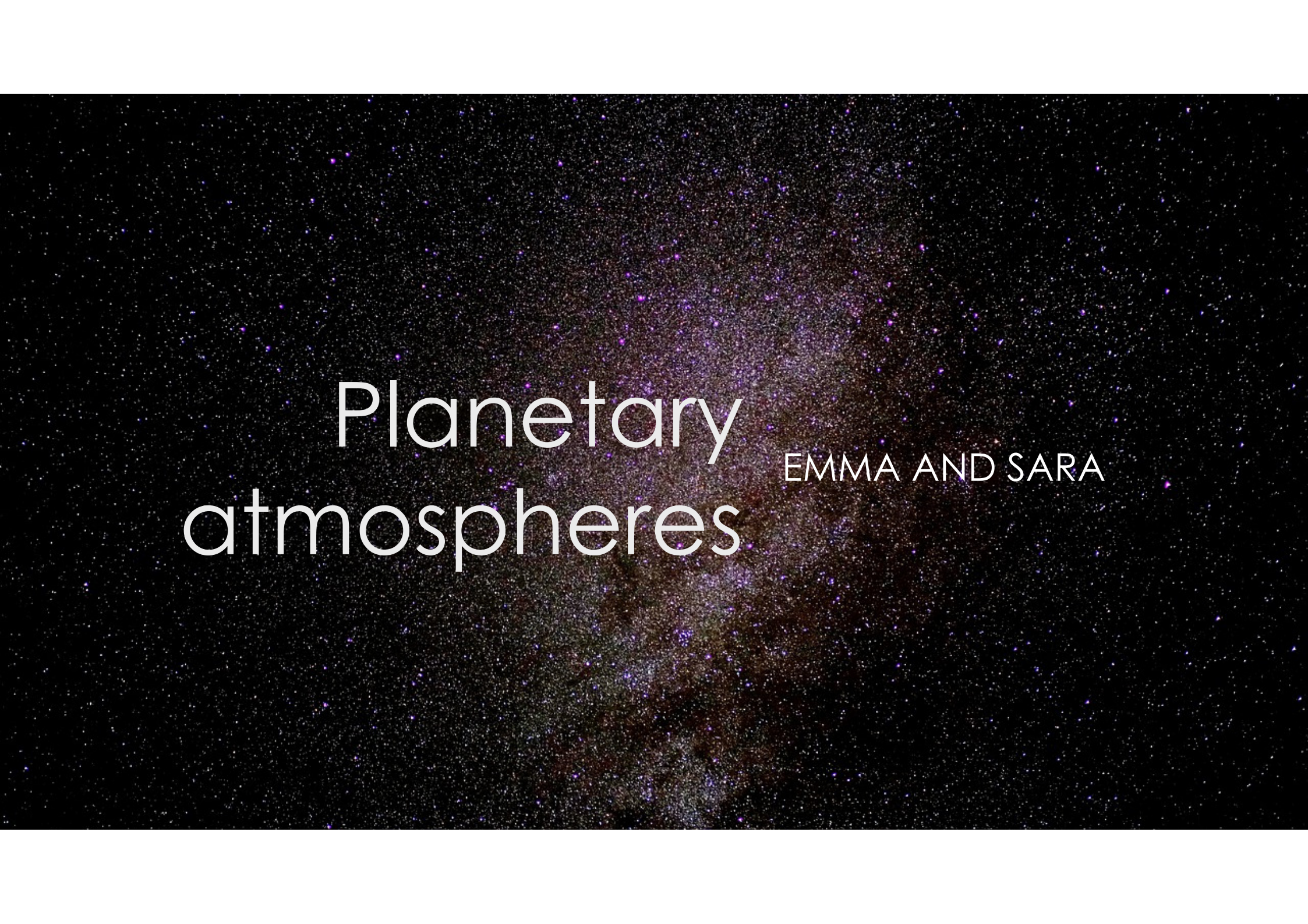




Planetary atmospheres

EMMA AND SARA

	<u>Venus</u>	<u>Maa</u>	<u>Mars</u>	<u>Titan</u>
Pintapaine (bar)	92	1	0,006	1,5
Skaalakorkeus (km)	16	8	11	
Kaasupylvään massa (kg)	1,0E+06	1,0E+04	1,6E+02	
Kokonaismassa (kg)	4,8E+20	5,2E+18	2,3E+16	
Kaasupylvään molekyylitiheys (/m ²)	1,5E+31	2,2E+29	2,3E+27	
Molekyylitiheys pinnalla (/m ³)	9,01E+26	2,52E+25	1,95E+23	
Tiheys pinnalla (kg/m ³)	6,58E+01	1,21E+00	1,42E-02	
Kaasun molekyylimassa ^[9]	44,01	28,97	44,01	28,67

ATMOSPHERE

- The atmosphere consists of a layer or a set of gases which surrounds a planet
- The consistency depends on the substances and what the planet is capable to retain in its atmosphere
- Atmospheres are caused by for example volcanic eruptions, sun's radiation and cosmic particle radiation



How does the mass of a planet affect to the atmosphere?

- If the planet is much more lighter than earth the oxygen gets away more easily
- Massive planets are able to have a dense atmosphere, but it can be full of toxic gases
- To be capable of living the hydrogen would have to get away from the surface of the planet

The atmosphere of earth

- An atmosphere surrounds earth
- The most common gases are nitrogen and oxygen in the earth's atmosphere
- Carbon dioxide has a huge effect to the earth and in its vegetation

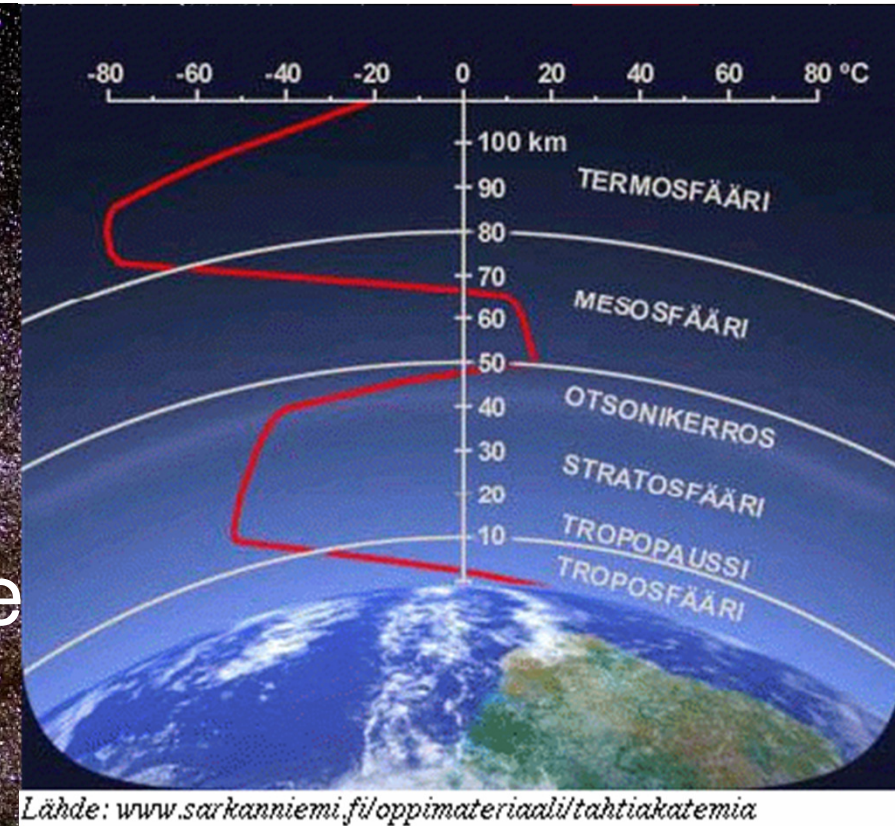


The layers

- Earth's atmosphere has been divided to several different layers
- First is called troposphere where the weather phenomenon happens
- Troposphere is about 10 km high depending for the place where you are

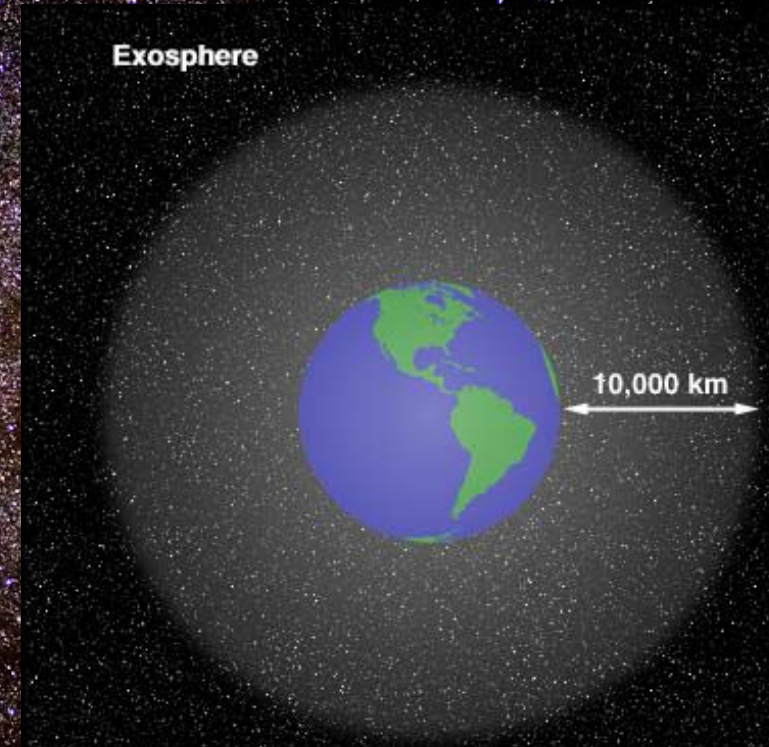


- The next layer stratosphere forms ozone against the ultraviolet radiation
- In mesosphere the meteors are usually visible
- Thermosphere starts at height 90 km
- The Karman line is kept the unofficial border of space



➤ Exosphere is the intermediate state of earth's atmosphere and space, whereof the particles escape to space.

➤ The exosphere starts at a height of 500 kilometers



Atmospheres of other planets

The temperature at Mercury falls from 430°C to -170°C at night and it has no seasons, because it hasn't an atmosphere at all.

- Venus is the only planet that has as remarkable atmosphere as earth. It's always cloudy.

Sun wind has made the atmosphere of Mars really thin. Mars loses about 100g of its atmosphere every second.



The atmosphere of Jupiter is about 1000km thick and it has lots of flows and cyclones. The biggest cyclone is able to be seen as a big red spot.

Familiar from earth's atmosphere auroras and lightnings appear also in Saturn's atmosphere. Saturn has a moon called Titan which is only known moon that has its own atmosphere.

Because of big pressure and methan in Uranus's and Neptune's atmospheres there rain diamonds. Methan causes also the blue color of both planets.



Atmospheric effects

Blue sky

Even though fresh air looks clear, it's not. There are molecules that scatter the sunlight to different directions. That's why the whole sky looks blue at the day time.

Aurora

Auroras begin on the top of the atmosphere when electromagnetic sun wind gets to the atmosphere nearby the magnetic fields.

Halos

Halos form when light breaks or reflects from ice crystals that float in the air. That's why halos are usually seen in winters.

<https://www.youtube.com/watch?v=5sg9sCOXFlk>



22° Haloring, By Heidi Meri, at Vuosaari, Helsinki



Aurora Korona, Itä-Lapin valokuvaajat Oy

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