

## HOW DOES RAIN FALL?

Rain is a liquid water in the form of droplets condensed from atmospheric water vapor and excreted to the Earth in the form of precipitation - i.e. it became heavy enough to fall to the ground under the influence of gravity. At first glance it seems that there is nothing strange about it, however, things are much more complex. How and why, in fact, does it rain?

## Clouds

When a cloud is sufficiently massive to cause precipitation, a *nimbus* supplement is added to its name. The clouds are divided in various ways, but the basic division is according to the height in which they are in the sky: low, medium and high.

9 km



The highest *cirrus* clouds, large elongated, cloudy clouds that are so high in the atmosphere, above 7 km, that are composed of small pieces of ice. From these clouds, ice rain or snow falls.

6 km



*Stratus*es are on somewhat bigger heights, from 2 to 7 km, and these are the clouds from which long, cold and slow rains fall, common in the autumn.

3 km



The nearest ones to the ground are called *cumuluses*, white, terrestrial and bubbling clouds in the form of a bunch, at a height of 0 to 2 km. Cumuluses bring summer thunderstorms.

0 km

### Evaporation

Water vapor is lifted from the ground because the water surfaces are constantly evaporating.

The total percentage of water vapor that the air can contain at a certain temperature is the relative humidity of the air. The quantity of water vapor that a part of the air can contain before it becomes saturated (100% relative humidity) and forms the cloud, depends on its temperature. Warm air can contain more water vapor than colder. The temperature at which part of the air must be cooled to become saturated is called the dew point.

### Condensation

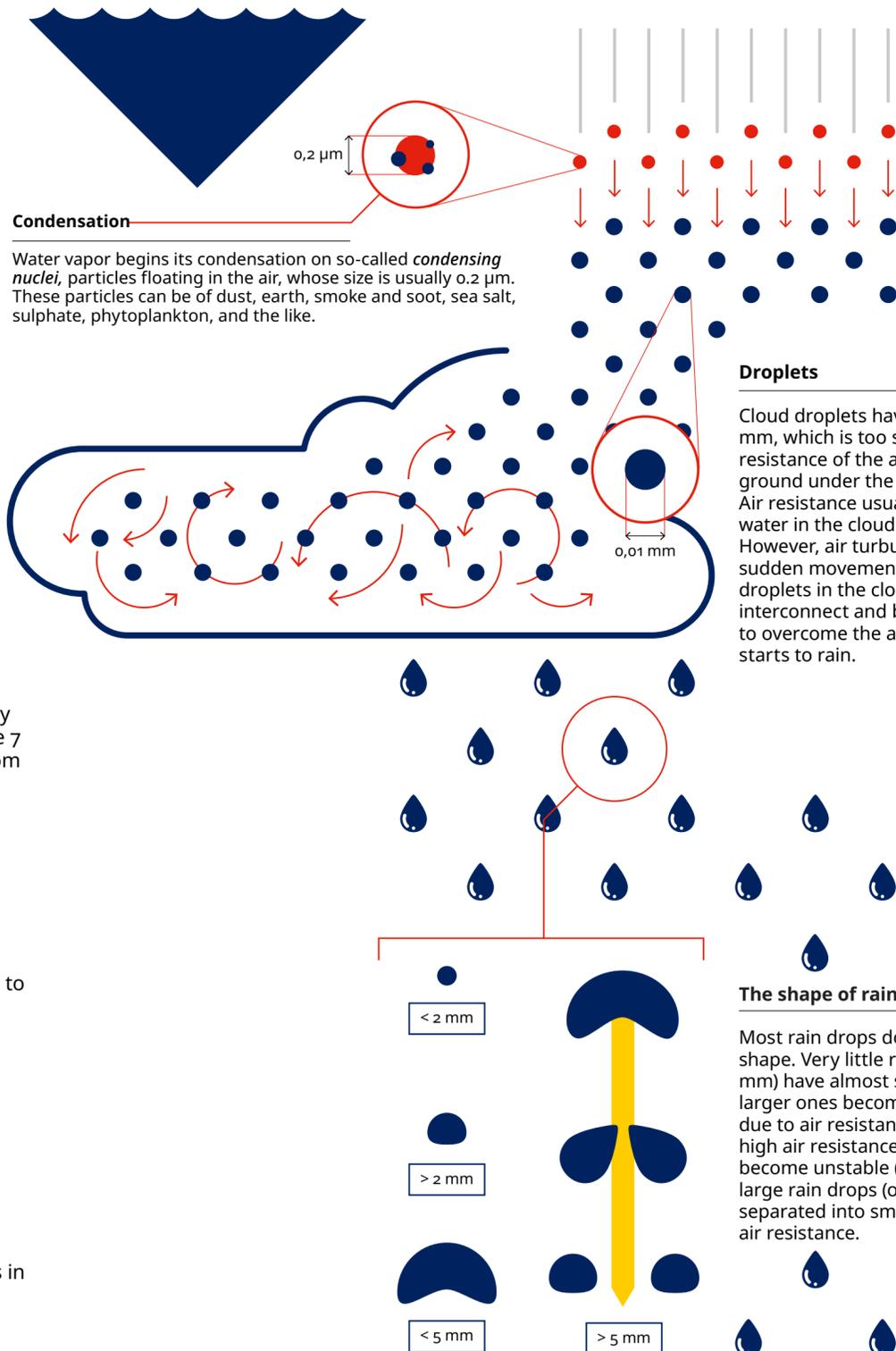
Water vapor begins its condensation on so-called *condensing nuclei*, particles floating in the air, whose size is usually 0.2  $\mu\text{m}$ . These particles can be of dust, earth, smoke and soot, sea salt, sulphate, phytoplankton, and the like.

### Droplets

Cloud droplets have a diameter of 0,01 mm, which is too small to overcome the resistance of the air and fall to the ground under the influence of gravity. Air resistance usually causes drops of water in the cloud to remain static. However, air turbulence can cause sudden movement and mixing of water droplets in the cloud, which interconnect and become large enough to overcome the air current. Then it starts to rain.

### The shape of rain drops

Most rain drops do not have a tear shape. Very little rainy drops (up to 2 mm) have almost spherical shape, the larger ones become flat at the bottom, due to air resistance. Because of the high air resistance, bigger rain drops become unstable (up to 5 mm). Very large rain drops (over 5 mm) are separated into smaller ones due to the air resistance.



# THE MOST AFFECTED PLACES ON EARTH (BY CONTINENTS)

