

## Transcripts of Aquarius Tour (English)

[00:00:00.00] [ music ]

[00:00:03.00]

[00:00:07.00] Earth's climate and the circulation of deep ocean currents are strongly influenced by the saltiness of the sea surface. So why don't we have detailed maps that show its rapid changes?

[00:00:18.00]

[00:00:19.20] Well, now we do.

[00:00:21.24]

[00:00:22.00] After more than a year of continuous measurements, NASA's Aquarius instrument aboard the Aquarius/SAC-D spacecraft has given us this new space-based view of sea surface salinity.

[00:00:33.25]

[00:00:34.15] A closer look at the data reveals some fascinating features.

[00:00:38.00]

[00:00:39.10] Our focus first turns to a salty patch of water in the North Atlantic Ocean.

[00:00:43.30]

[00:00:45.00] Evaporation of water from the sea surface leaves behind large amounts of salt that contribute to the active zone of high salinity water seen here.

[00:00:54.25]

[00:01:00.10] Conditions are different in the North Pacific Ocean.

[00:01:03.08]

[00:01:04.00] Near the equator, in one of the wettest regions on the planet, heavy rainfall adds an abundance of water to the sea surface.

[00:01:11.05]

[00:01:12.00] This results in the dark-blue band of low salinity water off the coast of South America and Central America.

[00:01:19.00]

[00:01:23.00] Rivers can also influence the amount of salt on the sea surface.

[00:01:27.10]

[00:01:27.25] Every second, millions of gallons of fresh water flows from the Amazon River into the Atlantic Ocean.

[00:01:34.14]

[00:01:35.15] The effect of this is a sinuous plume of low salinity water that extends from the mouth of this great river.

[00:01:42.02]

[00:01:44.45] At high latitudes, the seasonal melting of sea ice causes a sharp decrease in sea surface salinity.

[00:01:51.15]

[00:01:52.00] We see examples of this in the Labrador Sea and the coastal waters that surround Greenland.

[00:01:57.25]

[00:01:58.00] In spring and summer, surface currents transport the low salinity water south, where it meets warmer and saltier water carried north by the Gulf Stream.

[00:02:07.27]

[00:02:13.20] The contrasting patches of high salinity water to the west and low salinity water to the east of the Indian subcontinent are due to a combination of geography and climate.

[00:02:23.28]

[00:02:24.15] To the west, an arid climate and lack of freshwater input yields the salty waters of the Arabian Sea.

[00:02:31.05]

[00:02:31.15] To the east, monsoon rains and freshwater outflow from the Ganges River keep the Bay of Bengal far less salty.

[00:02:39.11]

[00:02:42.00] Without satellite observations, these global changes would be largely invisible to us.

[00:02:47.21]

[00:02:48.15] Ongoing measurements by Aquarius will help scientists better understand our vast oceans and how changes to ocean circulation and the transport of water through the atmosphere may impact Earth's climate.

[00:03:01.00]

[00:03:04.11] [ beeps ]

[00:03:10.25]