

VIDEO TRANSCRIPT

Salt Dome Formation

This video is an animation of how a salt dome forms, using East Flower Garden Bank as an example.

The video begins by showing layers of sediment on the sea floor. The white layer (third up from the bottom) represents salt deposits caused by evaporation of shallow seas thousands of years ago.

Over time these salt deposits, which are less dense than the layers above them, begin to push upward. This causes the overlying layers to buckle and bulge upward as well. As the dome begins to take shape, other structures appear on top. These represent the beginnings of coral reefs.

Pressures from sediment layers and the ocean above have also resulted in the formation of oil deposits beneath the sea floor. These deposits tend to seep between layers and are often found trapped above and around layers of salt. This is represented by a thick black line forming above the salt layer in the animation.

Eventually cracks and fissures form in the layers above and below the salt as a result of all the movement. These cracks (vertical black lines) allow some of the liquified salt to seep up to the sea floor forming brine (salt) seeps.

At East Flower Garden Bank, this has resulted in the formation of a large depression that traps the very dense water caused by the brine seep. The resulting "pool" is about 10 inches deep and contains hypersaline (super salty) water at about 200 parts per thousand (ppt). Normal seawater is about 35 ppt. The animation flies up and over the dome and rotates around to show this depression and the channel that eventually allows the brine to mix with regular sea water.

The video then zooms back to the top of the dome and shows the growth of coral reefs in patches on its surface. It then zooms out from the reef, shows the brine seep again, and continues pulling back until a large, three dimensional-cube is visible. This cube shows the sloped sea floor, the sea surface about two thirds of the way up, and air above that.

The video ends with a measurement bar showing the depth of each layer in the cube:

Water Surface 0m

Coral Growth -20m (60 ft)

Brine Seep -68m (215 ft)

Base of Slope -80m (240 ft)

Video Length: 01:32

Credit: Visual Candy/FGBNMS