

BY THE NUMBERS Ocean Gliders

In order to learn more about the circulation and ecology of the Southern Ocean—a cold, remote region near Antarctica—and the role it plays in global climate, Caltech oceanographer Andrew Thompson has enlisted the help of robots called ocean gliders, which can withstand extreme pressures. He has previously used these autonomous underwater vehicles to study a part of the region called the Weddell Sea, setting them free from a research vessel to roam the ocean for months at a time. The gliders record information about water properties and send data back to Thompson via satellite when they rise to the surface every few hours. This fall, Thompson and his research team will deploy the gliders in an area north of the Weddell Sea called the Drake Passage; the researchers will then return to Pasadena, where they will send the gliders their daily marching orders remotely. Thompson hopes to learn more about the dynamics of the region, known to have some of the strongest currents in the world.

7,200

Approximate distance (in miles) from Caltech, where the gliders will be remotely operated, to the Drake Passage.

1,000

Depth (in meters) that the gliders will dive to collect information like temperature, salinity, and dissolved oxygen in the water.

0.5

Speed (in miles per hour) at which the gliders will move along in the choppy currents of the Drake Passage.

4

Time (in months) that the gliders will spend collecting data.

60

Cost (in cents per minute) for the glider to “phone home” using Iridium satellites.