



**CALIFORNIA STATE SCIENCE FAIR
2010 PROJECT SUMMARY**

Name(s) Max B. Olsthoorn	Project Number J0710
Project Title Current Affairs: Ocean Currents Effects on the Disposition of Surface Materials	
Objectives/Goals My goal was to track the disposition of various pieces of debris in simulated Pacific Ocean currents to measure the speed of their movements and where they would come to rest; on the continental coast or out to islands in the middle of the Pacific Ocean. Based on a recent trip to the Galapagos Islands, I wanted to confirm the theory that the currents played a major role in helping different species of wildlife and vegetation make it out to the islands.	
Abstract Methods/Materials Key Material: 1 Trough,3 boxes of Clay,3 Electric Fans,15 Gallons of Water,1 Pound Salt,4 Sweetgum Tree Balls(simulated debris),1 Tube of Clear Silicon,1 Weigh Scale,1 Stopwatch,1 Measuring Tape Procedure: 1.Mold clay into the islands (Galapagos) and the coast (Continent of South America) to a scale comparable to the real elements. 2.Arrange the clay models in the trough to simulate the positioning of the islands from the continent of South America along the equator. 4.Duct tape 3 fans; one to the north, one to the south, one to the west of the trough, simulating the Humboldt, Panama and Pacific currents. 5.Fill the trough with water and salt to simulate bouyancy. 6.Put a ring of clear silicon around one of the Sweetgum tree balls to increase bouyancy. 7.Turn on the fans for five minutes to allow the currents to be established. 8.Drop the Sweetgum Tree balls into the water in front of the fan, first to the north,and then the south. 9.Once the piece of the debris is dropped, observe and time the movements and final resting points; repeat the 4 Sweetgum tree balls. 10.Take resulting metrics and apply to the mathematical equation.	
Results Equation used: Speed=Distance/Time. (e.g.Trial #5: 34.15 (T) divided by 23 (D), equaled 0.67 inches per second(S)in the simulation). The trials of debris moving from the south had shorter travelling times than those from the north. Also, all the trials moved along the coast before going out along the equator toward the Galapagos Islands. In addition, the more buoyant debris always moved out to the islands while the heavy debris got wedged back into bays along the Ecuador coast.	
Conclusions/Discussion It turned out that the more buoyant the debris, the shorter amount of time to reach the endpoint. My hypothesis was correct, the ocean current affects the speed of debris moving along the current based on weight and buoyancy because the two lightest Sweetgum Tree Balls had the two fastest times.	
Summary Statement My experiment was focused on the affect of various ocean currents on the deposition of surface materials moving from various origin points near the intersection of the Continent of South America, the equator and the Galapagos Islands.	
Help Received Supervision by Grade 6 Teacher, Ms. Trenner. Introduction to southern Pacific ocean currents provided by Jose Luis Cornejo Ortiz, #Pepo#, Galapagos National Park Conservationist, of San Cristobal, Galapagos, Ecuador. Also, thanks to my Father for helping me get my materials.	