



**CALIFORNIA STATE SCIENCE FAIR  
2006 PROJECT SUMMARY**

<b>Name(s)</b> <b>Jessyca A. MacMullin</b>	<b>Project Number</b> <b>J0615</b>
<b>Project Title</b> <b>Follow the Jet Stream</b>	
<b>Objectives/Goals</b> The objectives of this experiment were to: 1). Determine if barometric pressure and the jet stream have a predictable relationship and 2). To use that relationship to assist in forecasting wet or dry weather for the following day.	
<b>Abstract</b> <b>Methods/Materials</b> With the use of our home computer accessing the internet web site <a href="http://www.weather.com">www.weather.com</a> , I mapped and recorded the location of the northern jet stream and studied its movements. The aneroid barometer recorded the barometric air pressure in millibars (mbar), showing significant changes in the weather pattern. A rain gauge recorded rain fall in millimeters (mm) outside my home. Daily, for 15 days in February, I recorded in my notebook barometric pressure, precipitation, general weather conditions and the position of the current jet stream as determined at <a href="http://www.weather.com">www.weather.com</a> . Each evening at 9:00 PM, I predicted rain or no rain without influence from other forecasters. After making my prediction I printed out the <a href="http://www.weather.com">www.weather.com</a> forecast for the next day location of the jet stream. I then analyzed both predictions the following evening.	
<b>Results</b> The first 5 days of the project, we experienced a rainy period of low pressure 996 to 1004 mbars and the jet stream located south of the 47 degrees north latitude. Rain totaled 85 mm. The next 10 days we experienced a dry period of higher pressure 1000 to 1014 mbars. The jet stream was located north of 47 degrees latitude for 8 days. No rain occurred until the 15th day when pressure dropped 5 mbars and the jet stream dipped south of the 47 degrees north latitude and a small rain event occurred of 2 mm.	
<b>Conclusions/Discussion</b> My hypothesis was correct about 87 percent of the time during the midwinter 15 day test. It appears, when the northern jet stream is north of 47 degrees latitude, northwest California has generally high pressure (1,003 to 1,014 mbars), and we can expect dry conditions. When the jet stream is south of 47 degrees north latitude and lower pressure, (996 to 1008 mbars) is present, we can expect wet weather.  I also found, when the barometric pressure dropped or rose approximately 10 mbars within a 24 to 36 hour time the dry or rainy period would change to the opposite period.	
<b>Summary Statement</b> This Project is about analyzing the location of the northern jet stream with the barometric pressure of coastal Northern California in order to predict tomorrow's wet or dry weather conditions.	
<b>Help Received</b> My Dad helped me with understanding the jet stream. My Mom helped me with the lay out of my back board. The US National Oceanic And Atmospheric Administration Weather Station at Woodley Island, Eureka CA meteorologists were helpful in explaining various weather concepts.	