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|  | | Homework 2 | | | | |  | |
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|  | | | | Masoud Akbarzadeh |  | | | |
|  | | | | 2/17/2024 Estimate of Time to Completion: 10hr  Maximum Allocated Time to Completion: 15hr  Actual Time to Completion: 1hr  Peers in this homework: Juan, Nari, Amel —Objective Analysis in Atmospheric Science— |  | | | |
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### Problem 1

1. The average pressure is: 846.33 hPa, Standard deviation = 5.62 hPa

The average pressure when it rains is: 847.03 hPa

1. Since the number of data points is large enough, a z-test was used. Also, since the pressure can be anomalously higher or lower, a two-sided z-test was used.

* Let’s use 95% confidence (A value of α = 0.05 was chosen)
* The null hypothesis is that the local pressure is not anomalously high or low when it is precipitating.
* A two-sided z-test was used so z>z0.025 = 1.96
* > 1.96
* So our null hypothesis is rejected and by 95% confidence the pressure is higher when it is precipitating

0.052%

Because it is less than 2.5 percent we can say it is rejected

### Problem 2

1. Hypothesis testing

* Null hypothesis:

* Two-tailed confidence interval of 95%
* Using z-stat because number of samples are more than 30
* A two-sided z-test was used so z>z0.025 = 1.96

So the null hypothesis of is not rejected.

1. H\_0:\ \mu=\ 0

Jessie M  
Katurah