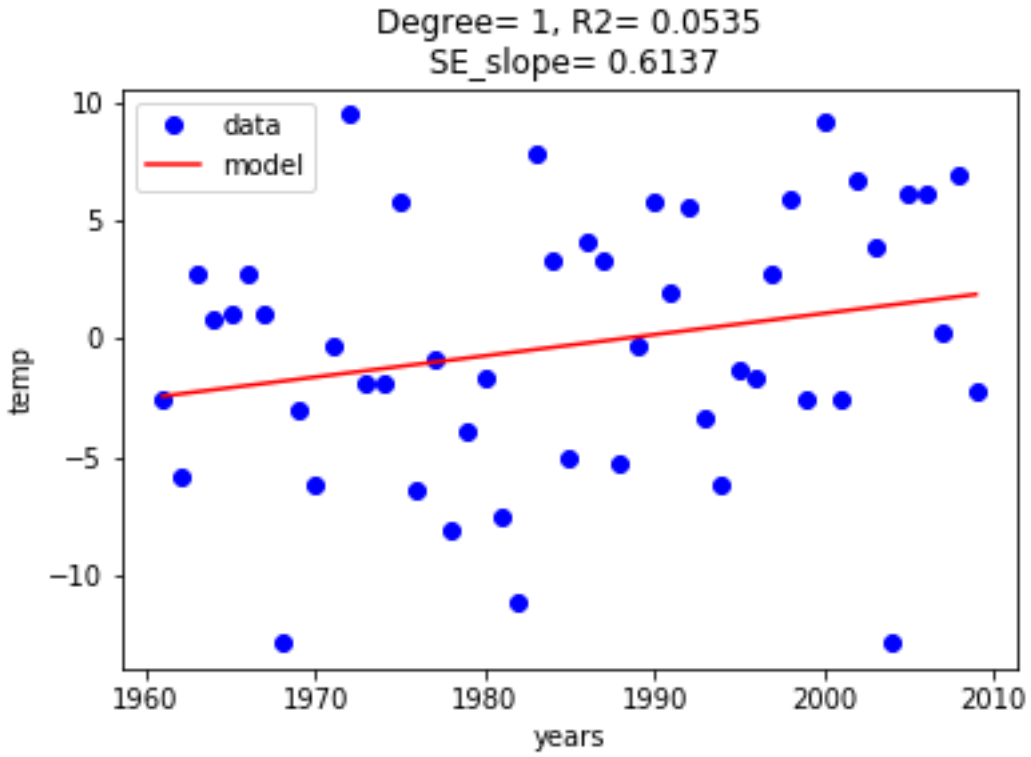
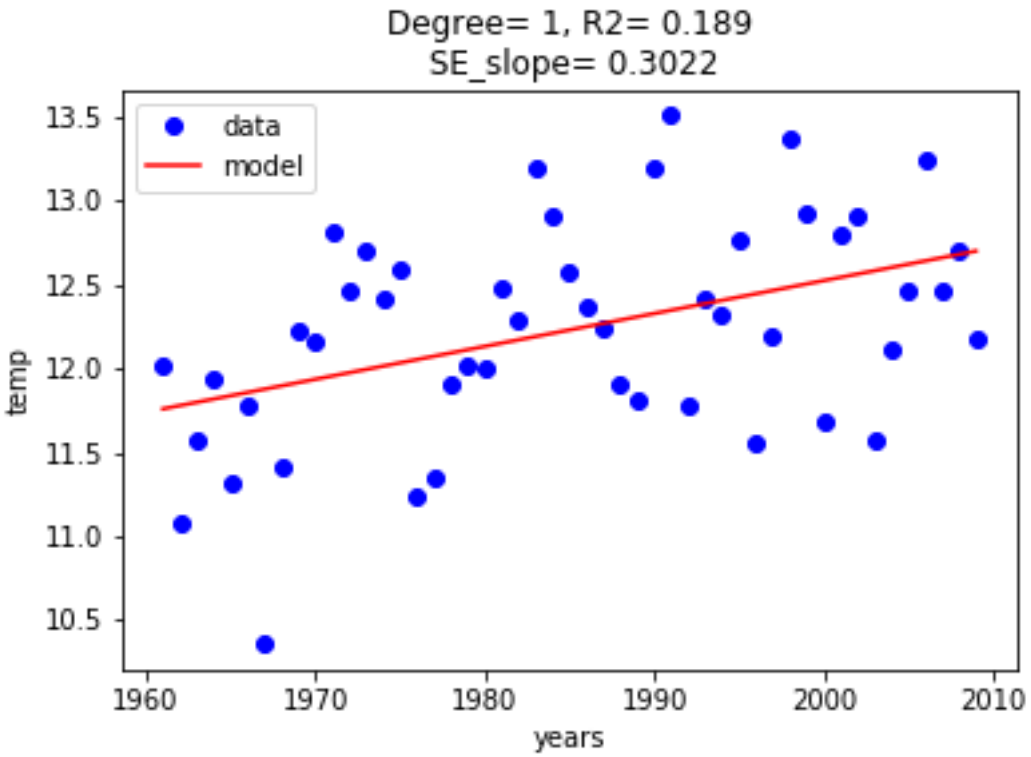
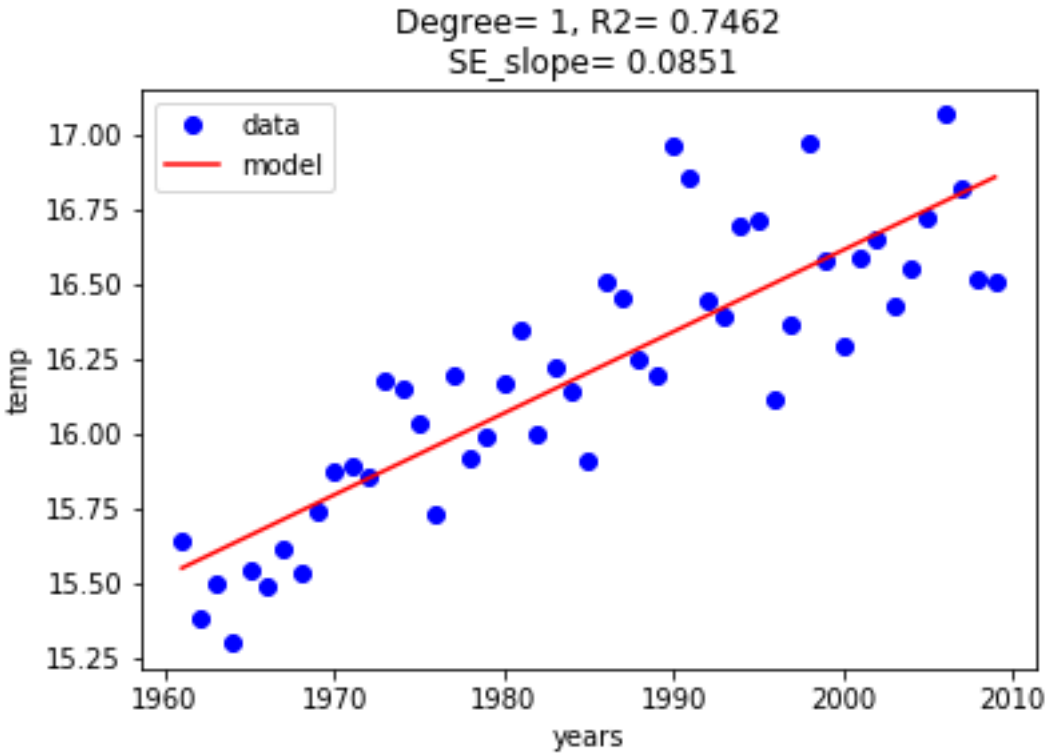


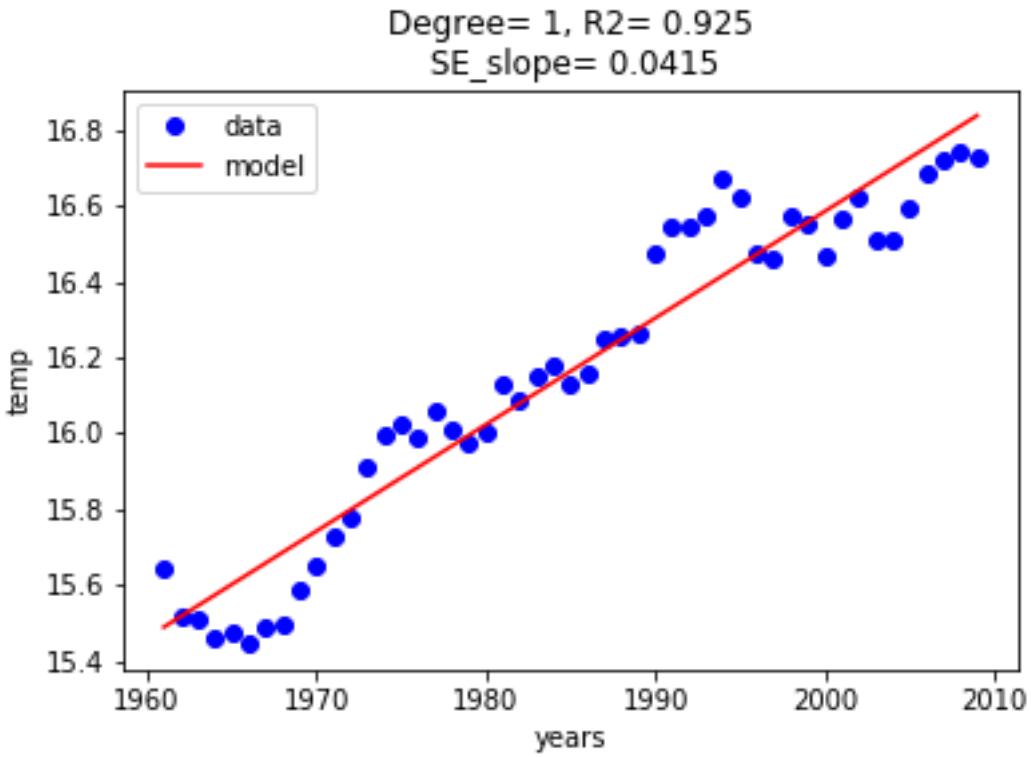
For each year the temperature of New York on January 10th. We see from graph that there is smt wrong.



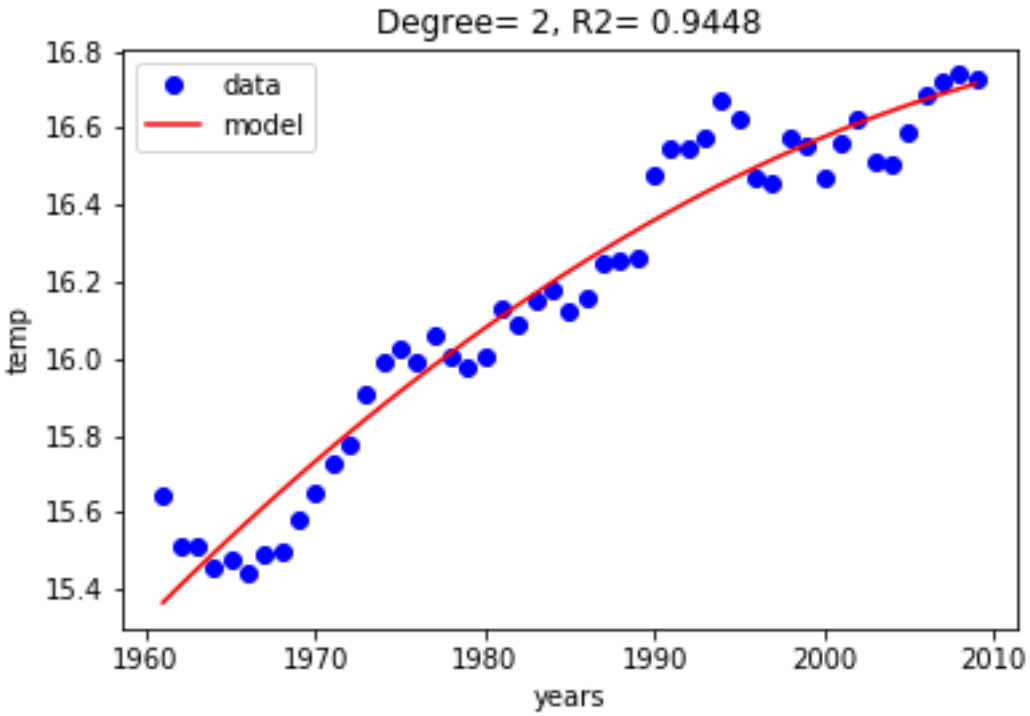
For each year the avg yearly temperature of New York . Again wrong selection



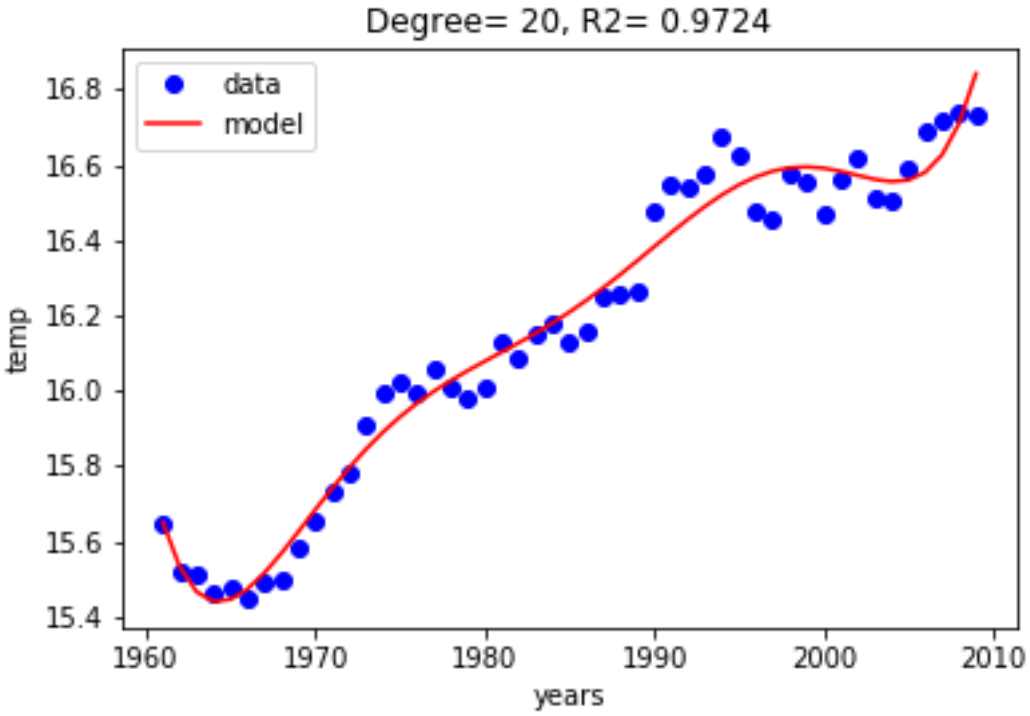
For each year the avg yearly temperature of whole nation . It looks better. We are talking about climate, so we need to look the whole region, not just one city



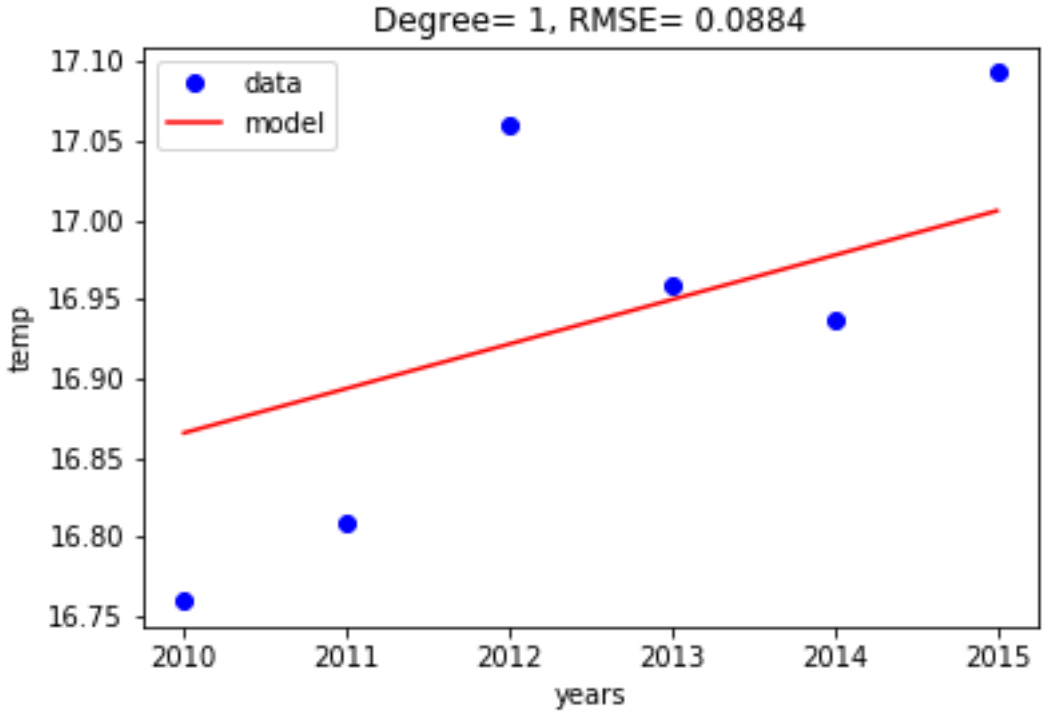
For each year the moving avg of temperature within 5 year periods of whole nation. Now we got high R^2 value. Also our standard error slope is too low. Our data is very close to our model. One thing remained, does our polyfit degree is okey?



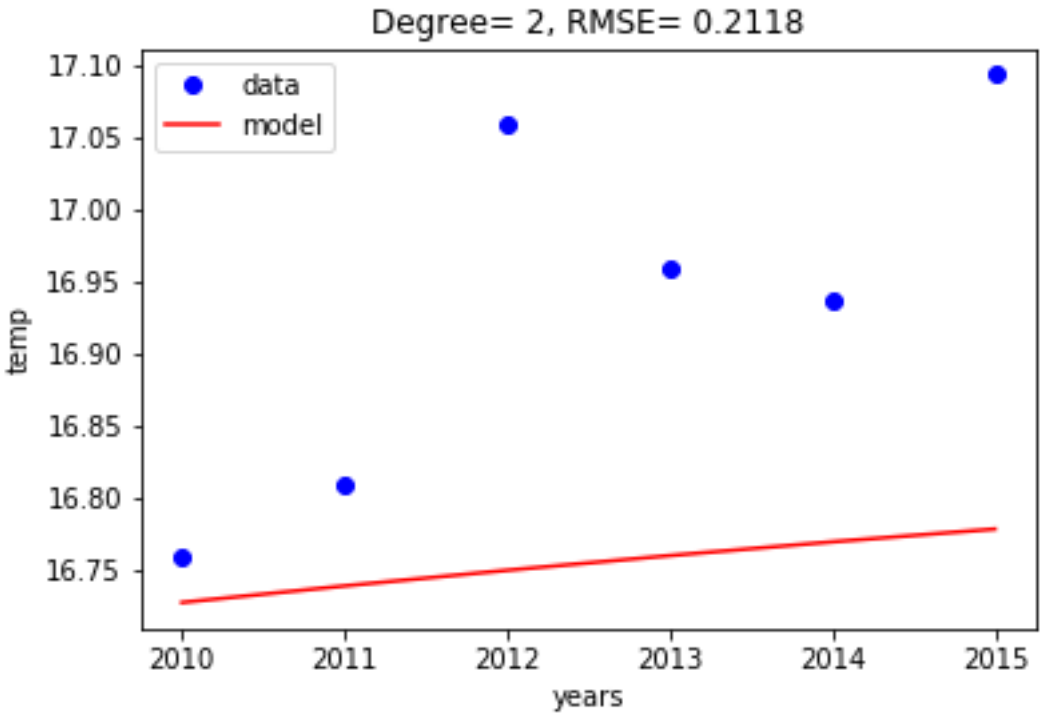
Degree 2 seems better.

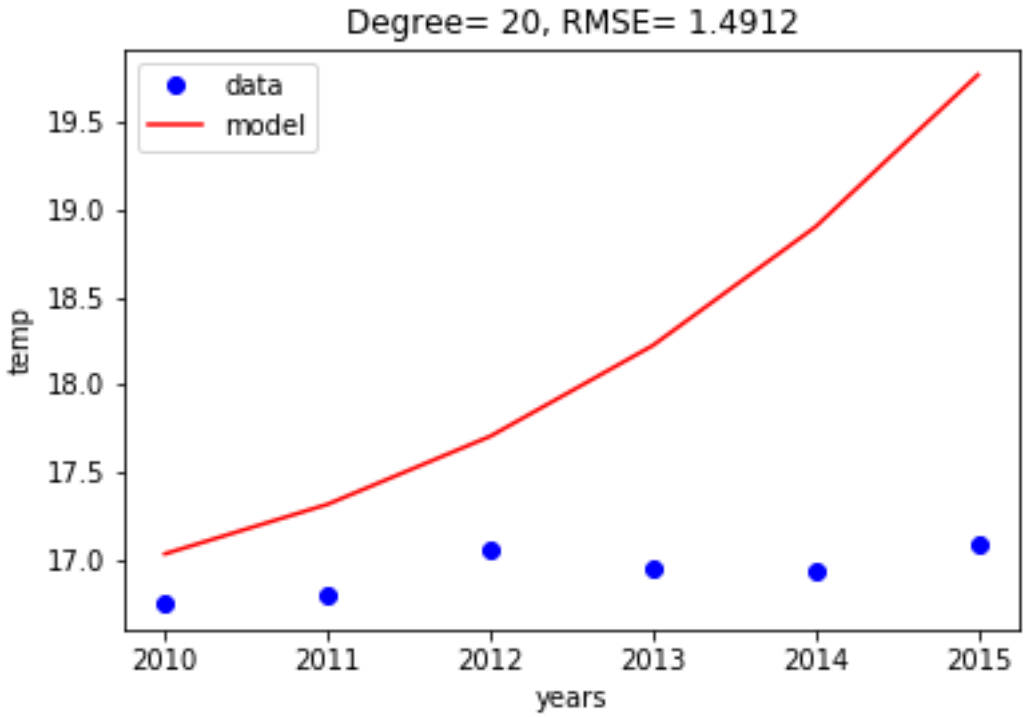


Degree 20 seems better than all. Lets test these models with our test data between 2010- 2015.

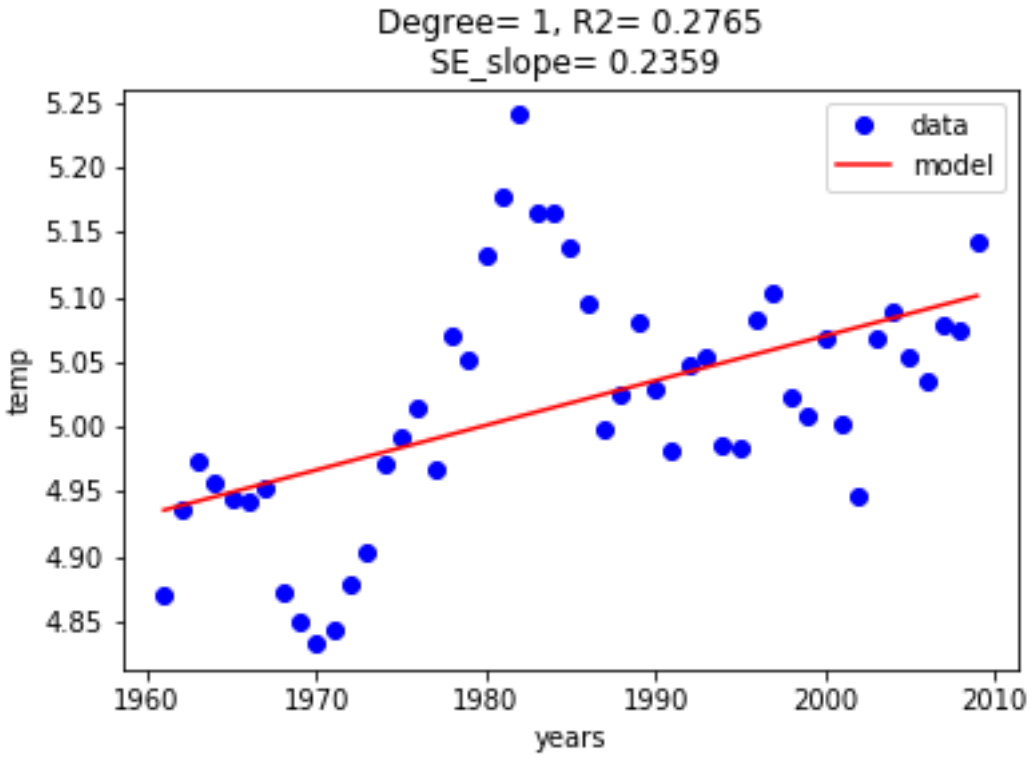


We test each model with root mean squared value. For degree 1 it results better.





We see that if we increase our degree we do overfitting with our training data. So finally, we select our model as linear 1 degree fitting.



In this graph, we check for moving standard deviations of yearly temperatures within 5 year periods of whole nation. As expected, std deviation has an increasing trend as years passed.