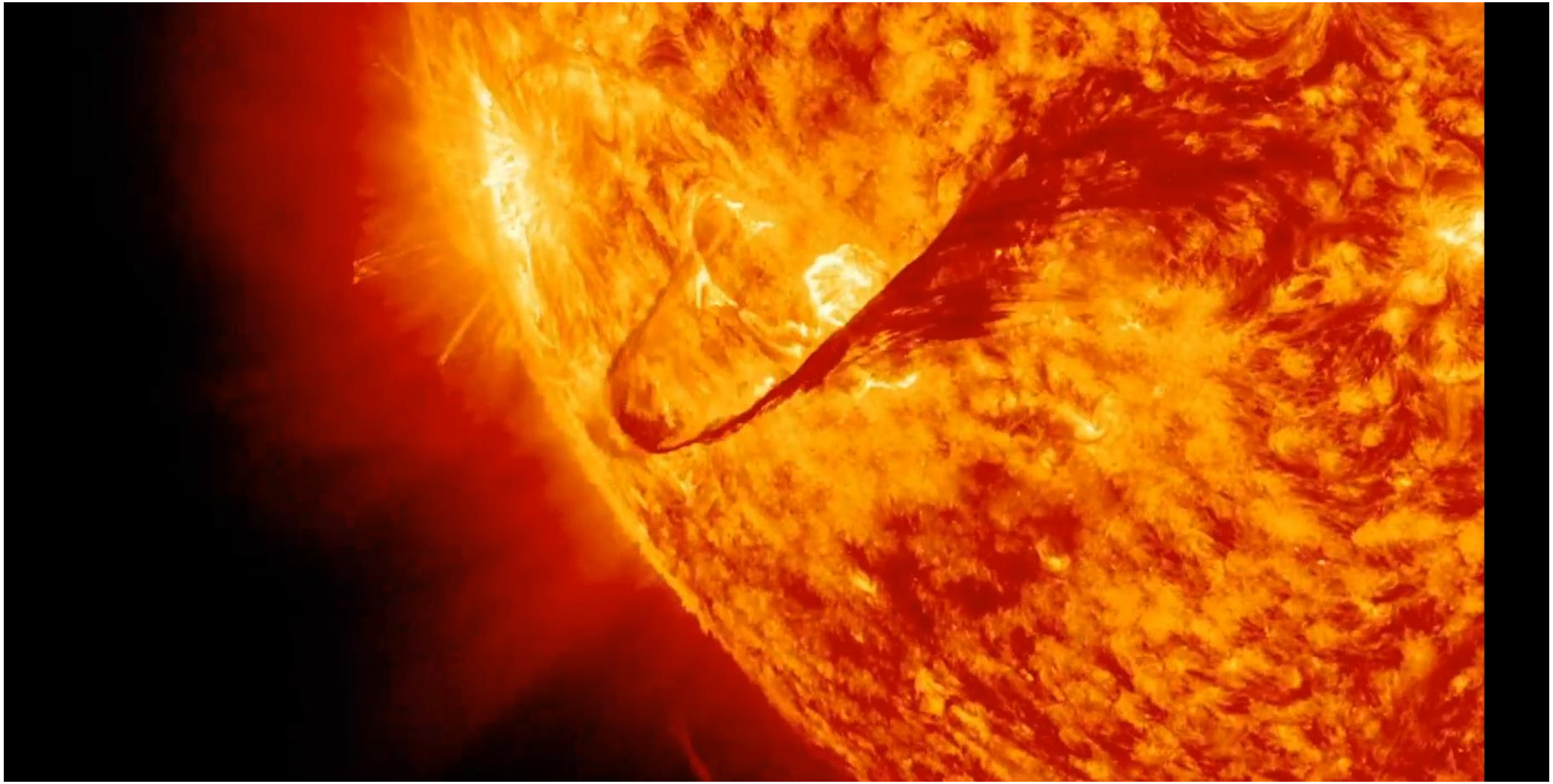
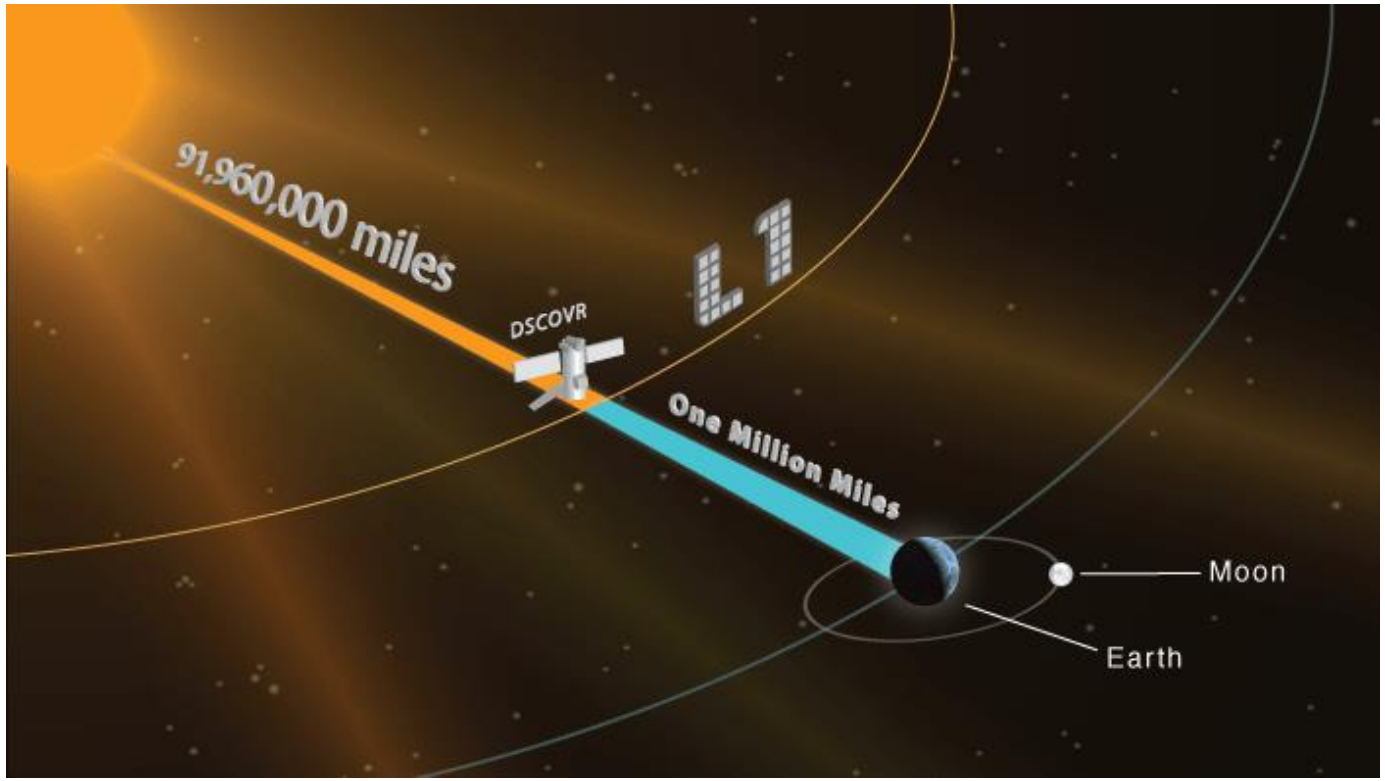
SAVE THE EARTH FROM ANOTHER CARRINGTON EVENT

Plasma Beaters

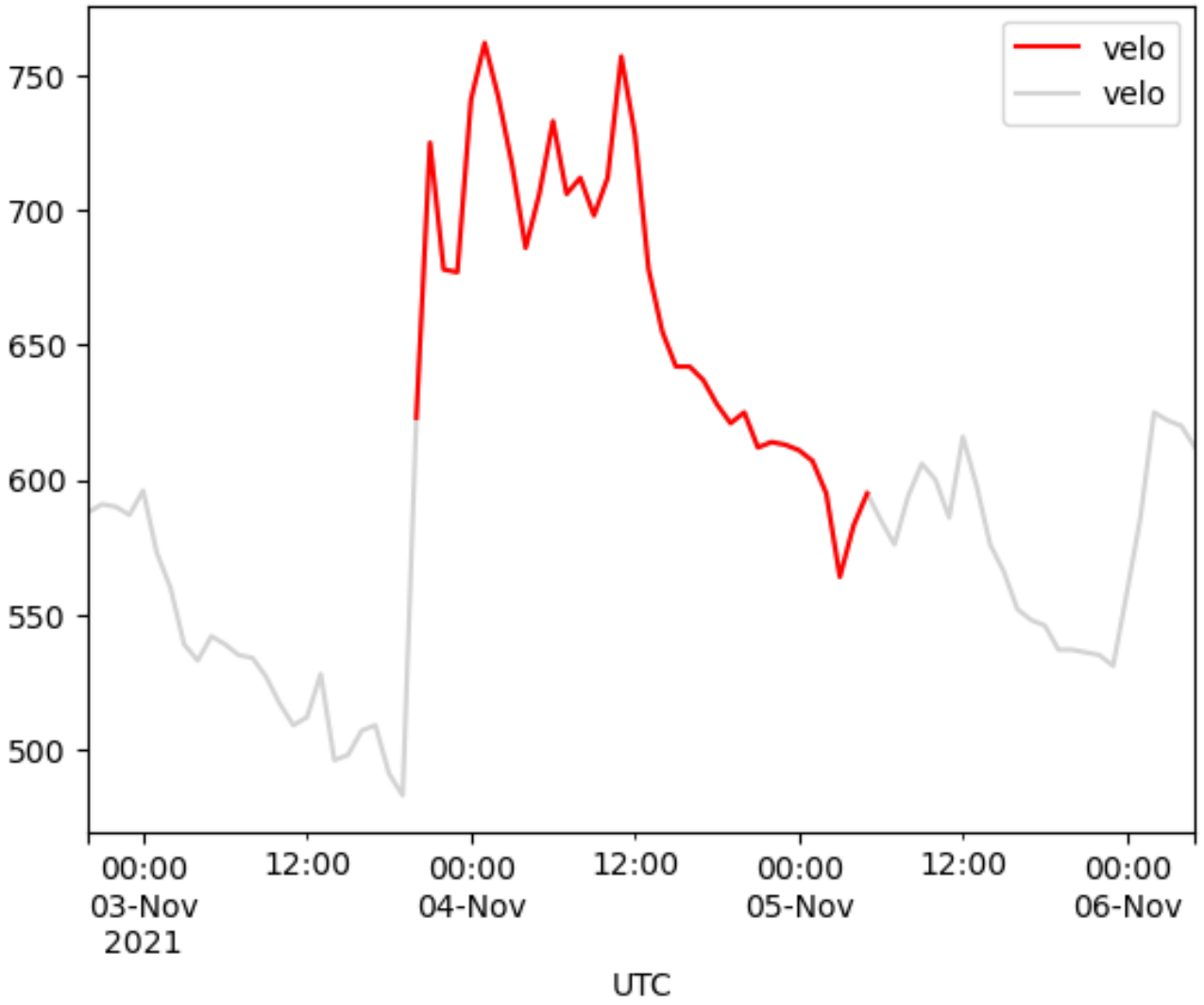
Manohar Teja Kalluri, William Beckwith Chandler, Harvey South, Matthew Spurrier

Coronal Mass Ejection




91,960,000 miles
DSCOVR
L1
One Million Miles
Moon
Earth

CME


velo
velo
750
700
650
600
550
500
00:00
03-Nov
2021
12:00
00:00
04-Nov
12:00
00:00
05-Nov
12:00
00:00
06-Nov
UTC

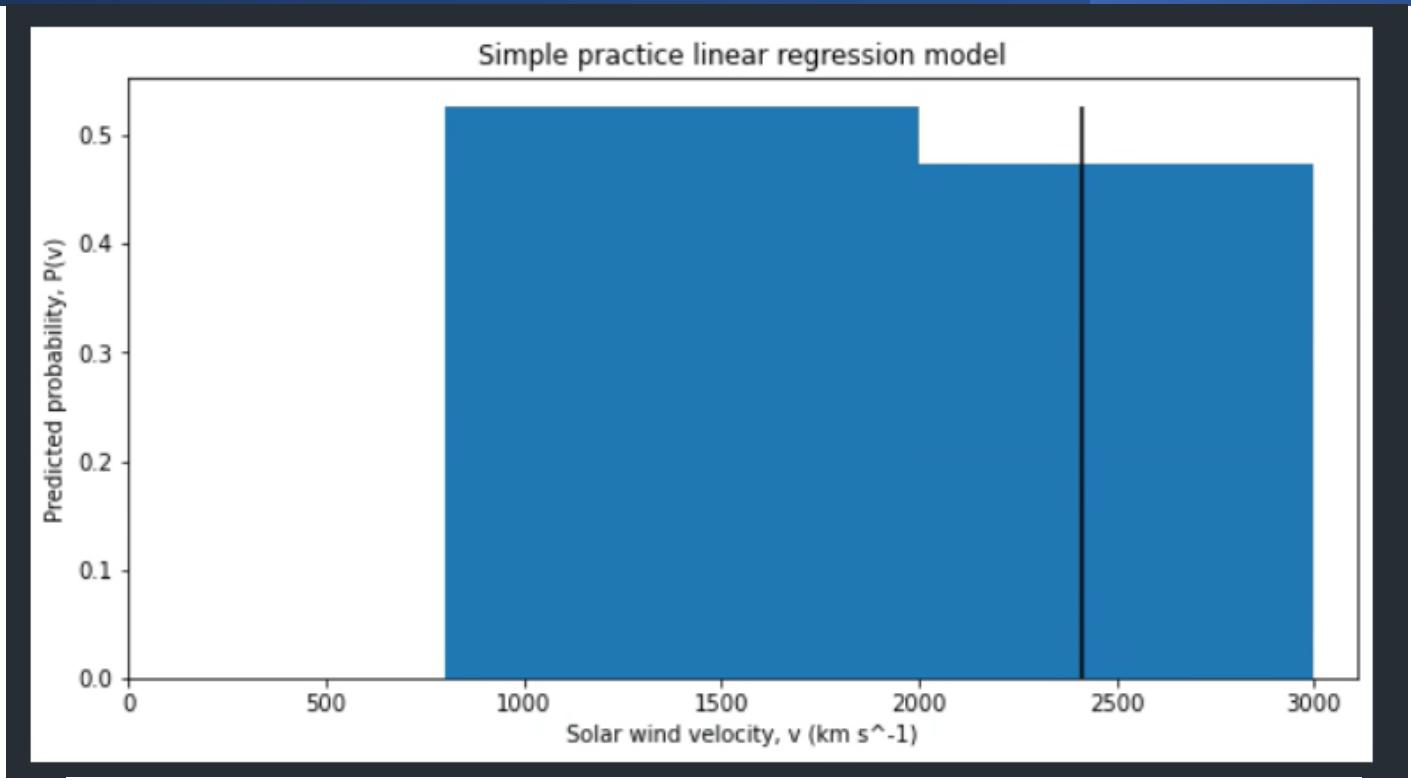
Predicting the future events:

- Use the past data for CME events to predict future CME events using Machine Learning

ML Task

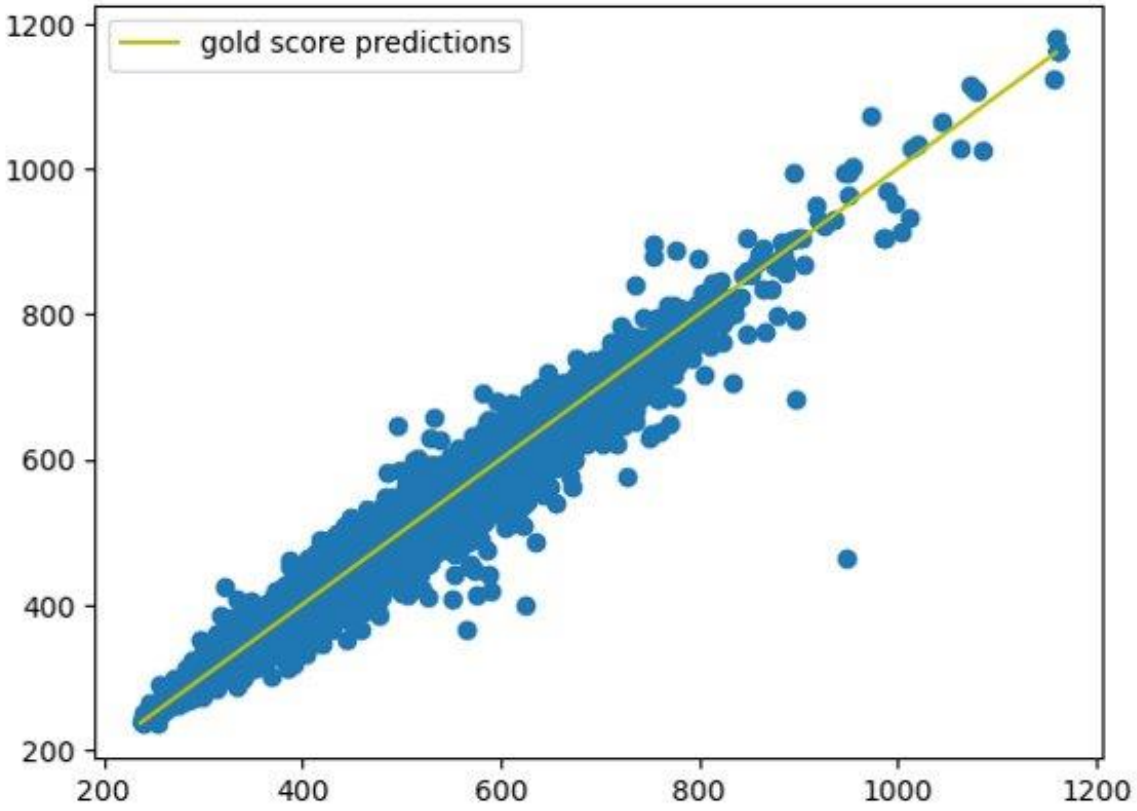
Timestamp peak
Initial solar wind speed
2 800km/s
Peak solar wind speed
800-3000
1000
Timestamp threshold
Timestamp peak
Initial value speed

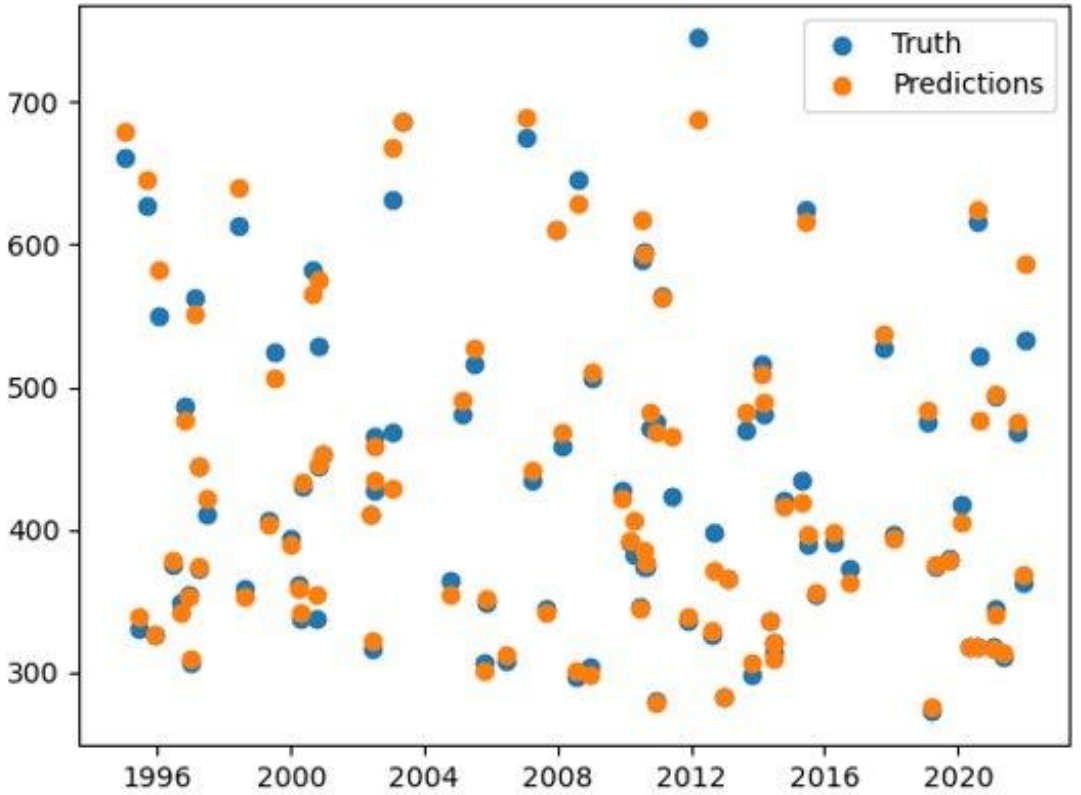
ML Linear Regression



	0	1	2
0		Actually over	Actually under
1	Predicted over	142	46
2	Predicted under	77	235

ML Test


gold score predictions
1200
1000
800
600
400
200
200
400
600
800
1000
1200


Truth
Predictions
700
600
500
400
300
1996
2000
2004
2008
2012
2016
2020