

ARLISS2006

comeback competition

report

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Our payload

- Rover type payload for runback
- Our payload name is “Mamorukun”.
- The origin of “his” name is a word association game from “a mallet of luck (like a cornucopia)”.



Features of Mamorukun

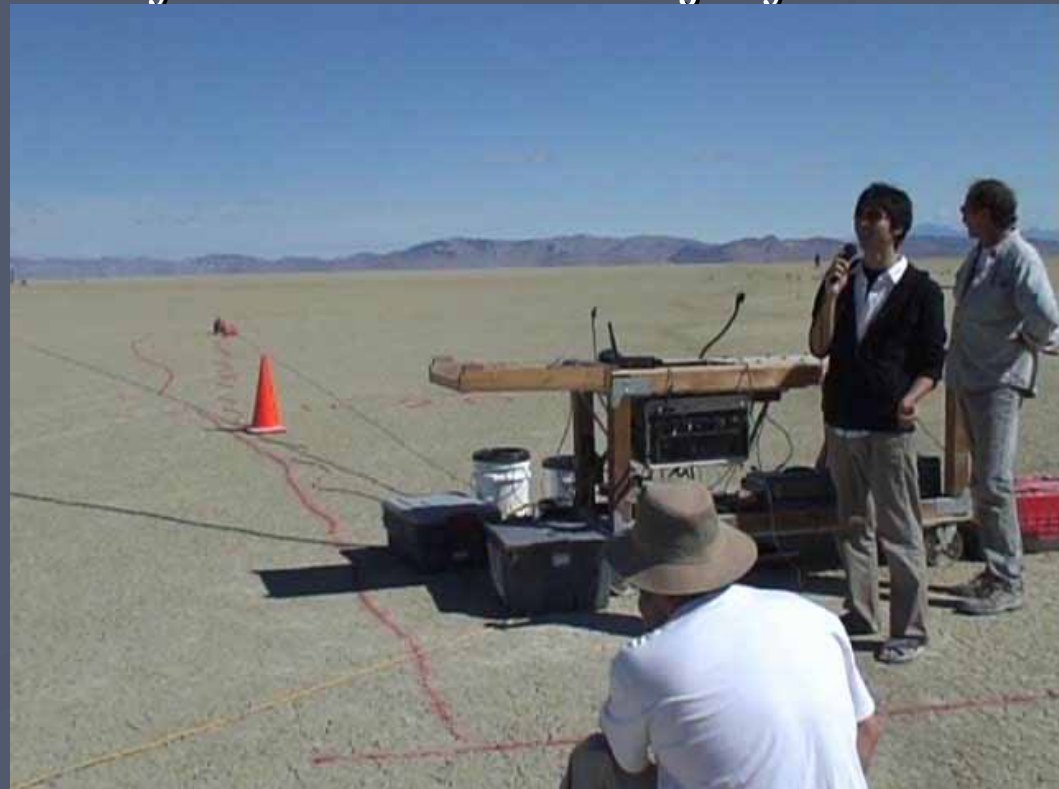
- Not being involved string of parachute by using a fishing rod.
- Separating parachute to cut fishing line by heated NiCr line
- Max speed is 3 [km/h].
(maybe fastest velocity in the history of ARLISS)
- Navigation with only GPS receiver.



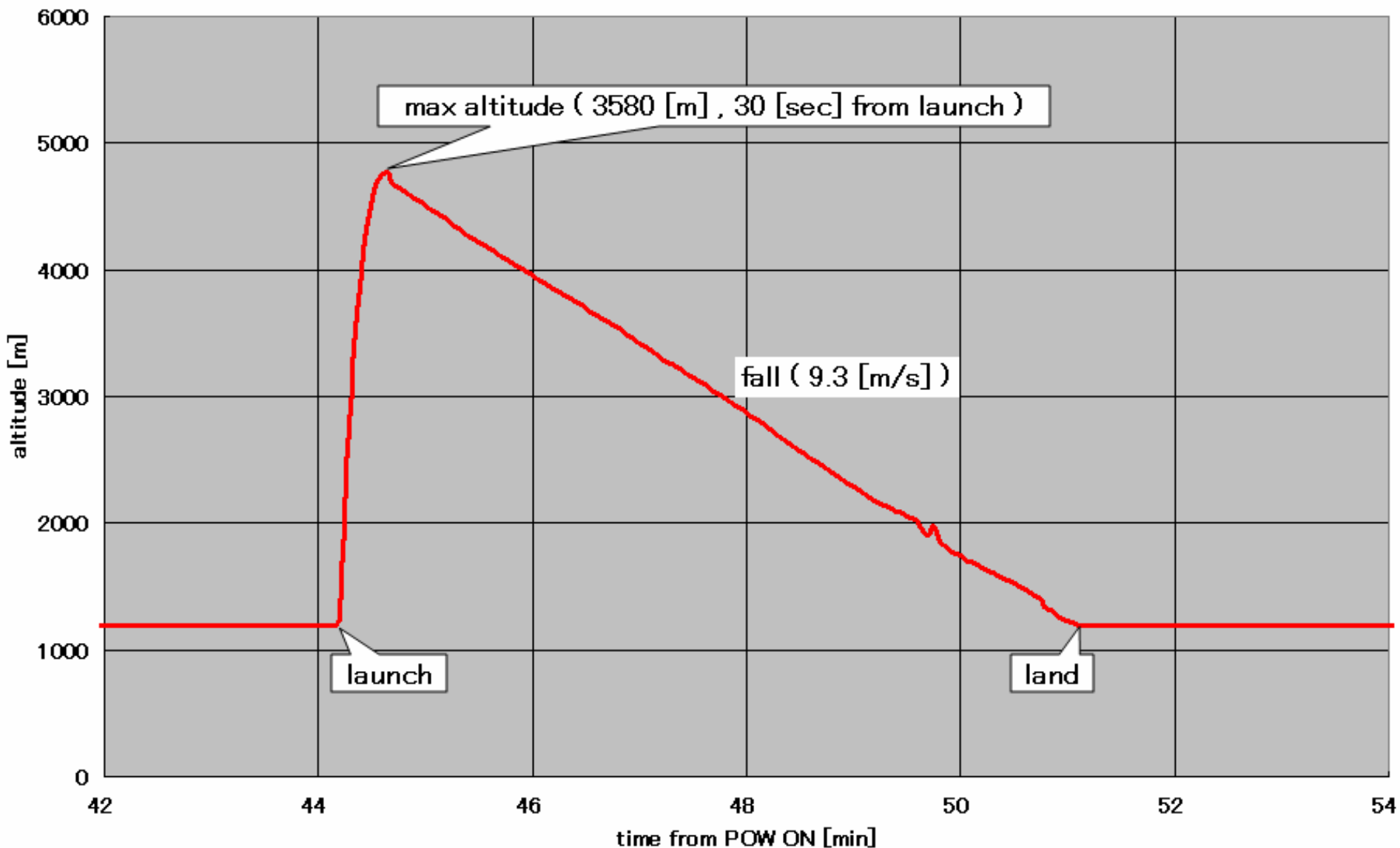
1st trial

- “Mamorukun” was launched by Mike.
- “Mamorukun” cannot runback because the nose cone of the rocket wasn’t opened.
- But the log was kept successfully and he had no injury.

We found out the followings from analysis of the log.

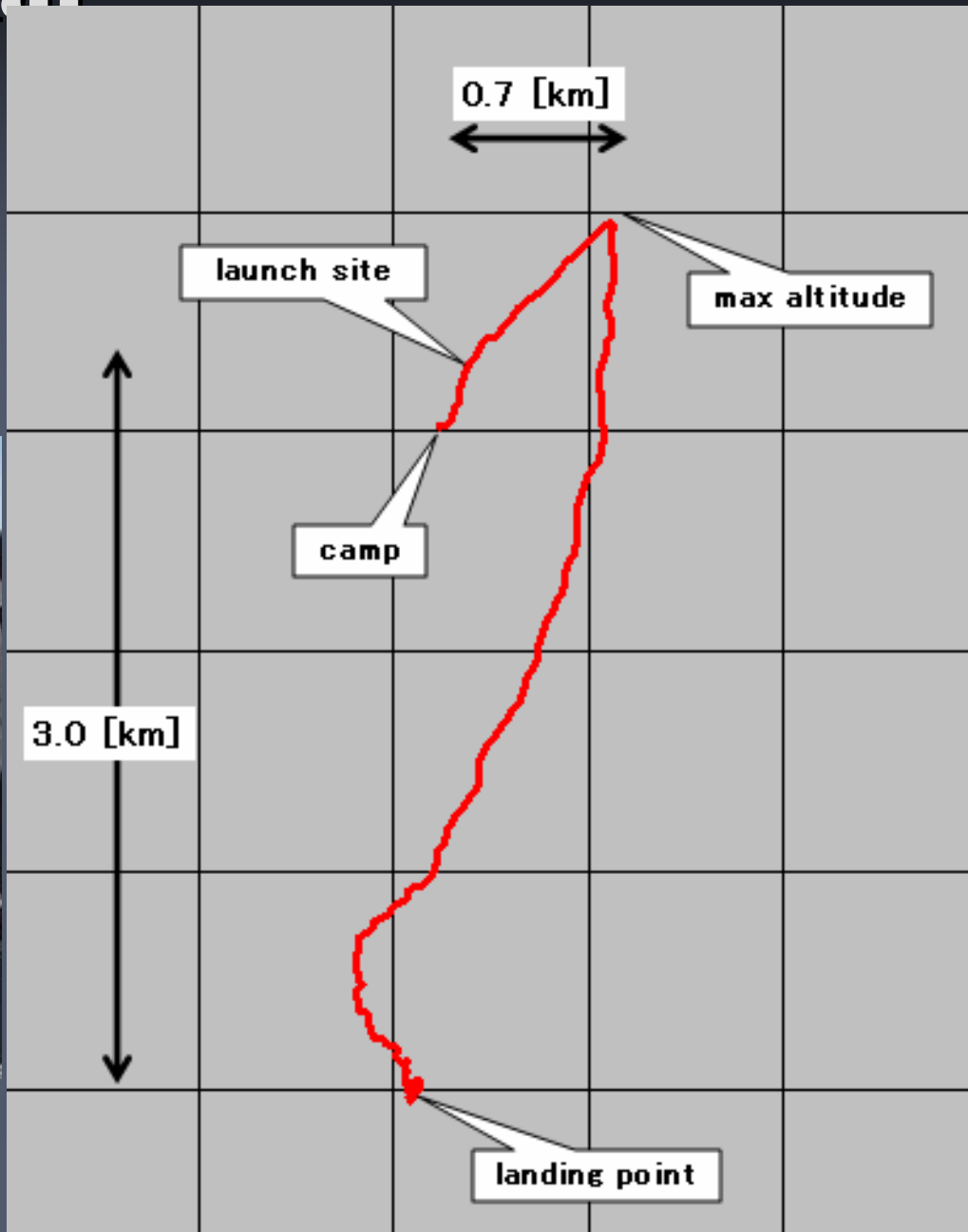


The altitude of 1st trial



The track of 1st trial

- He landed 3.0 [km] from launch site.

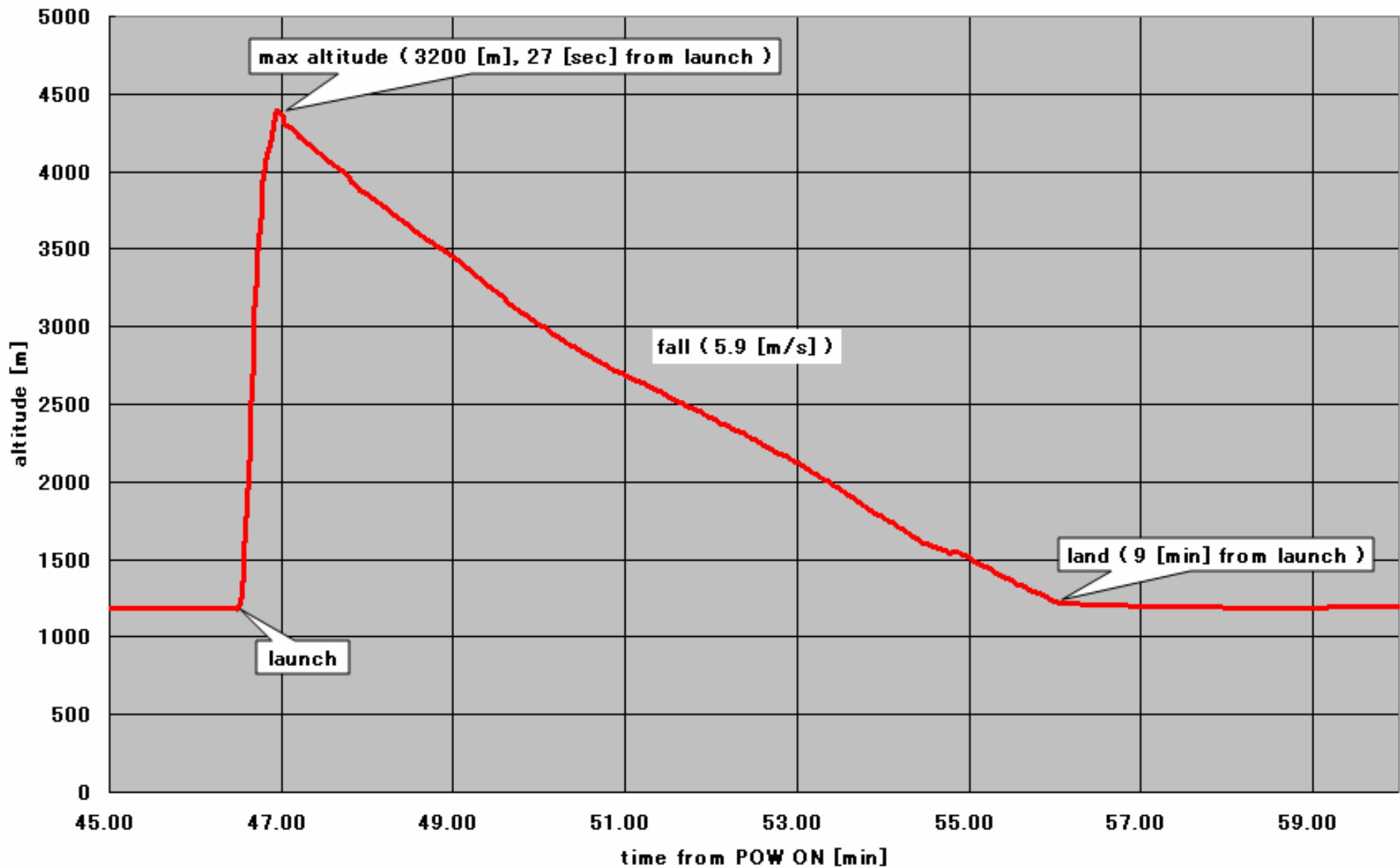


2nd trial

- It was windy on the 2nd day.
- Our rover was launched by Eric.



2nd trial



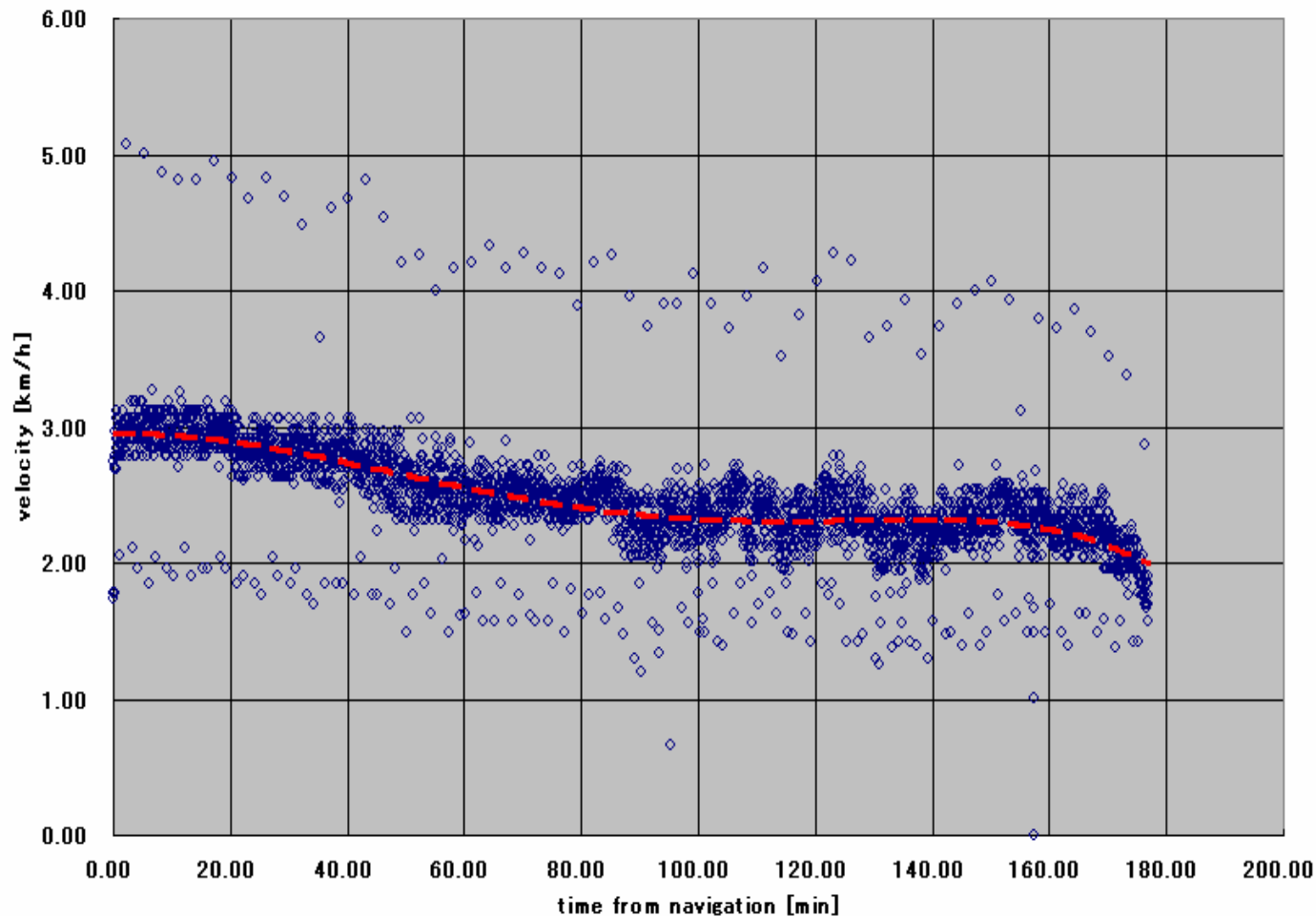
2nd trial

- After 45 minutes from the launch , we found him running.
- At the time , he was at 4.8 [km] from the goal.

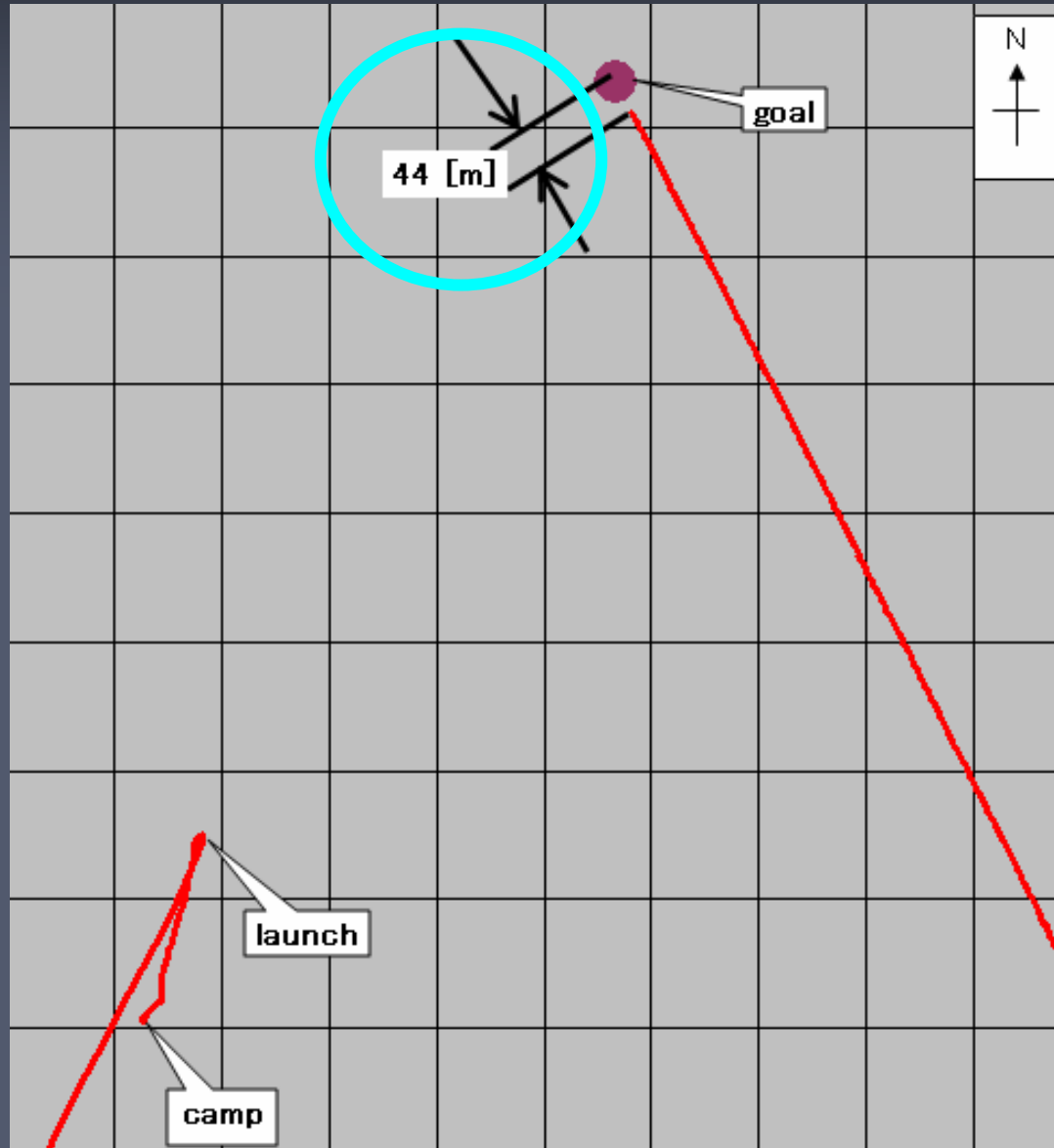


2nd trial

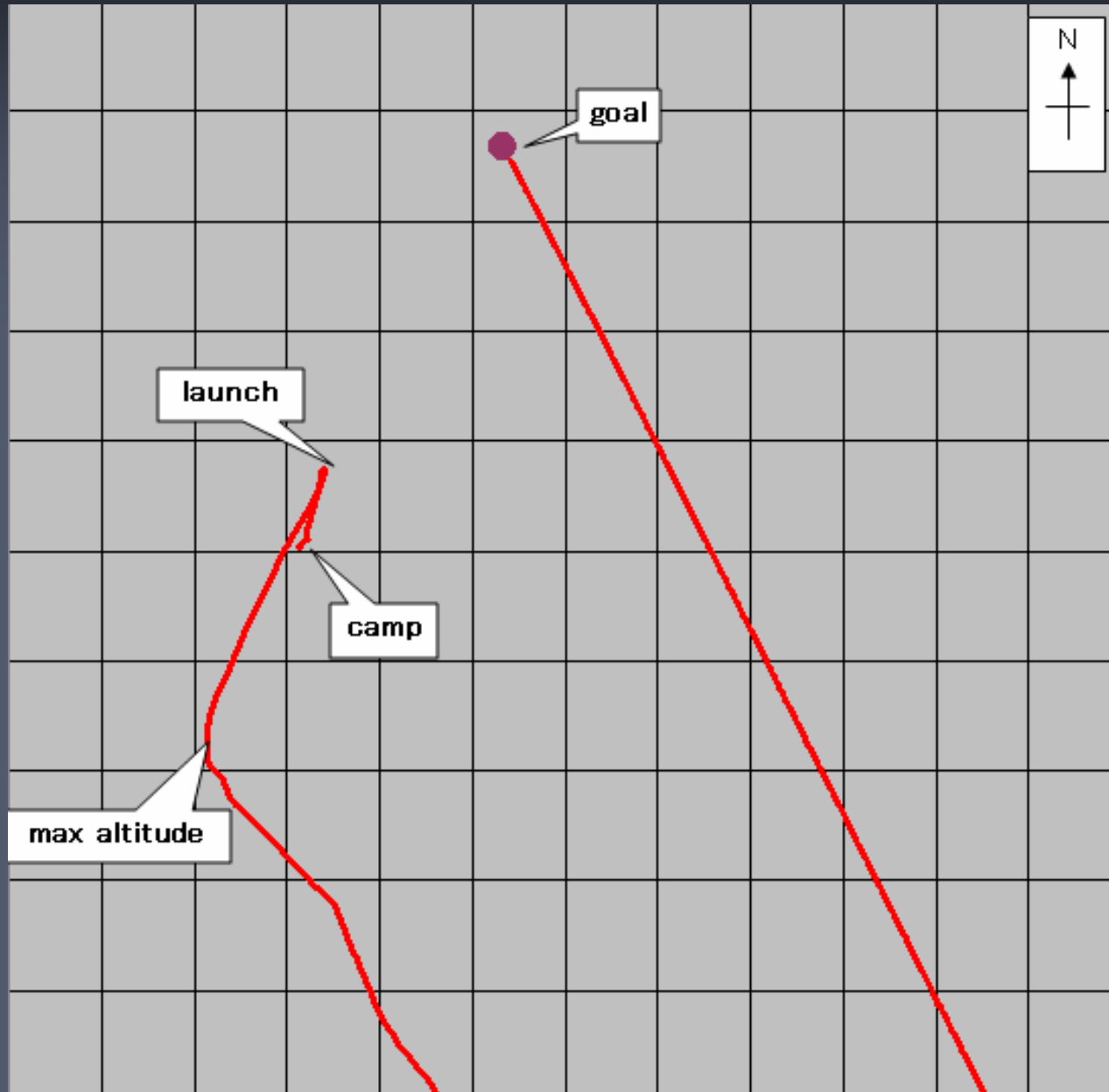
- “Mamorukun” ran at 3.0 [km/h] max , and 2.43 [km/h] average
- At last , the battery became empty ,
and he stopped at 44[m] from the goal.



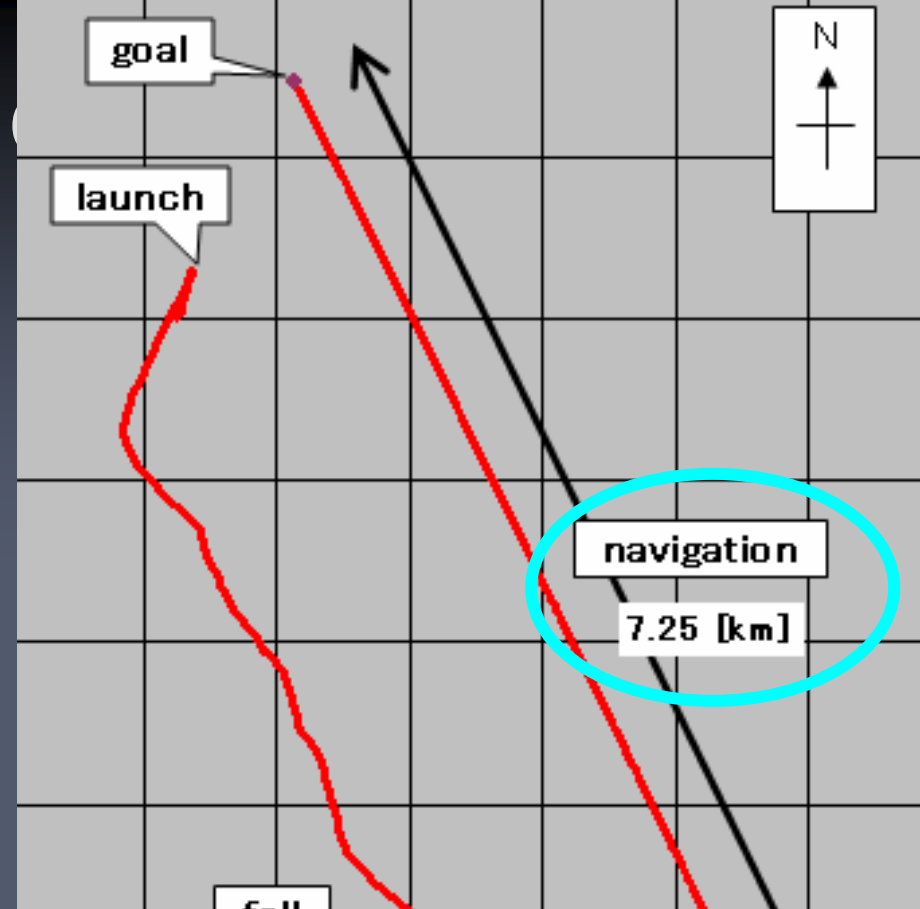
The track of the 2nd trial



The track of the 2nd trial



The track



**Mamorukun ran straightly.
Wonderful navigation!!!**



Conclusion

- At the 1st trial , our rover couldn't start running because of the rocket trouble.
- At the 2nd trial , “Mamorukun” came back to 44[m] from 7.29[km] to goal in 3 hours.
(speed : average 2.43 [km/h], max 3.0 [km/h])

We couldn't win the competition. But we are satisfied with the results because of accomplishing comeback mission.

**Thank you for such nice opportunities,
all of the AEROPAC members,
Prof. Twiggs and who helped us.**