

Student Name-Surname:

Student Number:

Report Date: Dec. 29, 2023—Time: 23:59

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**1. Purpose of LabWork03:****Event Interval:****Magnetopause Time:**

**Explain** what the magnetopause is in your own words. Use any diagram/figure/sketch to explain how it forms. Explain what are the signatures that you used to determine the magnetopause for your event. Explain what controls its motion.

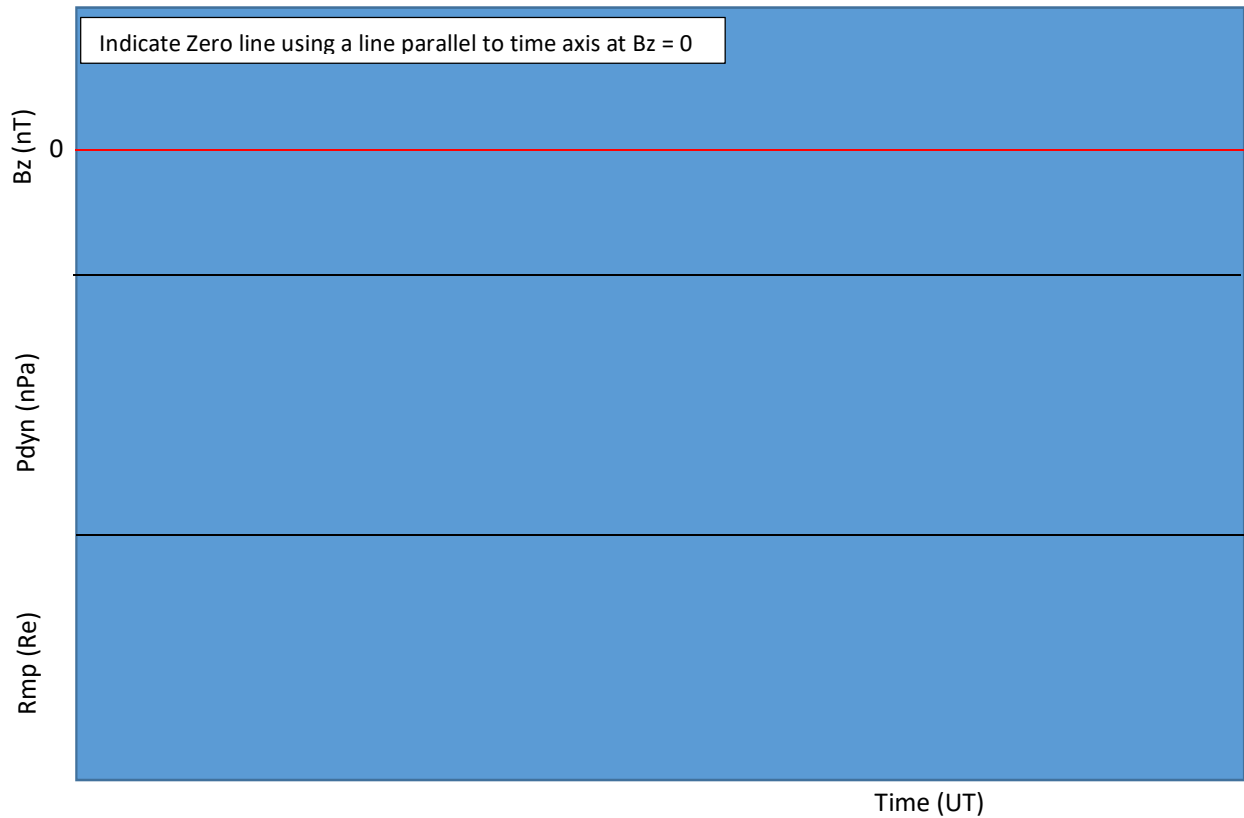
Calculation of magnetopause distance using msheath data

Calculation of dynamic pressure using magnetsheath data

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**2. Times Series Plots**

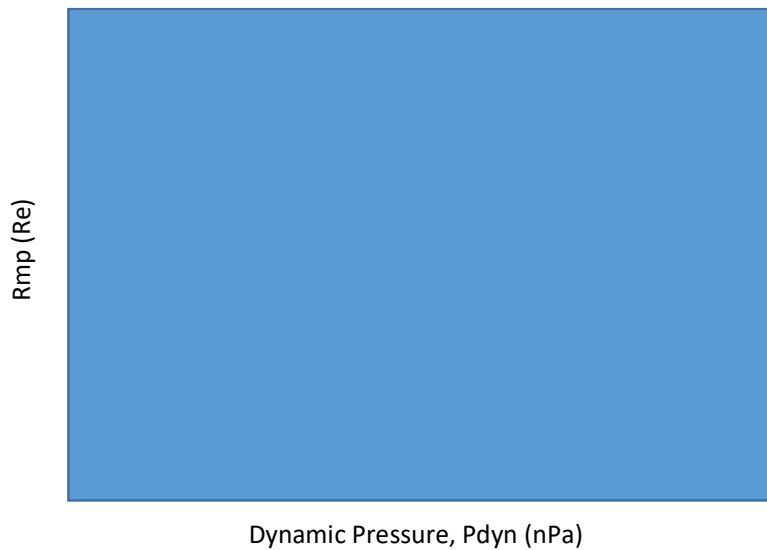
Interpret the variations between  $P_{dyn}$  and  $R_{mp}$  here.

According to your data what can you say about the relationship between  $P_{dyn}$  and  $R_{mp}$  and IMF  $B_z$  and  $R_{mp}$ ? Which one seems dominant in the motion of the magnetopause ( $R_{mp}$ )?

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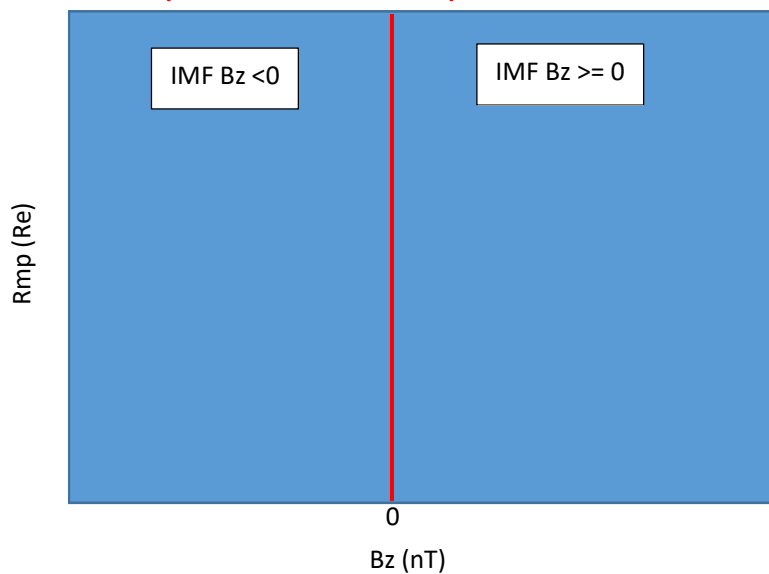
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**3. Scatter plot of Pdyn versus Rmp.**

Interpretation of the plot above. What can you say how Pdyn controls Rmp?

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**4. Scatter plot of IMF Bz versus Rmp.**

Interpret the plot above. What can you say how Bz (shocked IMF Bz) controls Rmp? Which one controls more? Pdyn or Bz (shocked IMF Bz)? Use term IMF Bz for the Bz component of the magnetosheath for your interpretations.

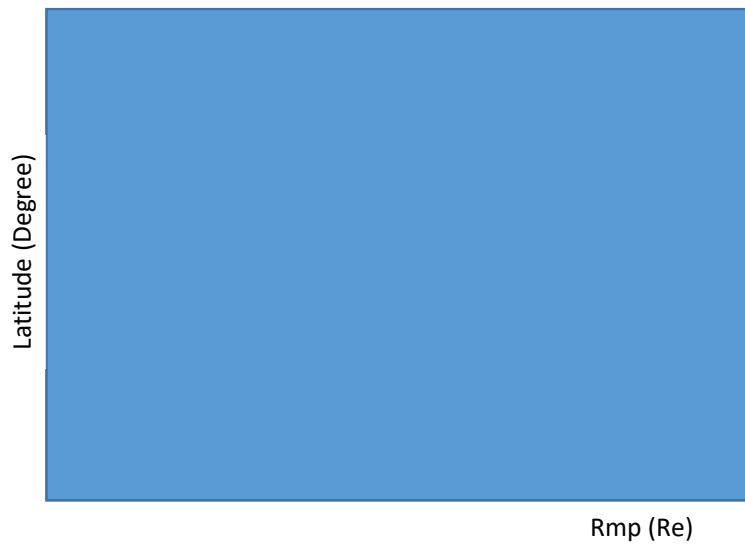
You can arrange your plots as you wish depending on size of your panels. Above are just examples and there is no specific arrangement meant when placing each panel. Give the title of each Table panels.

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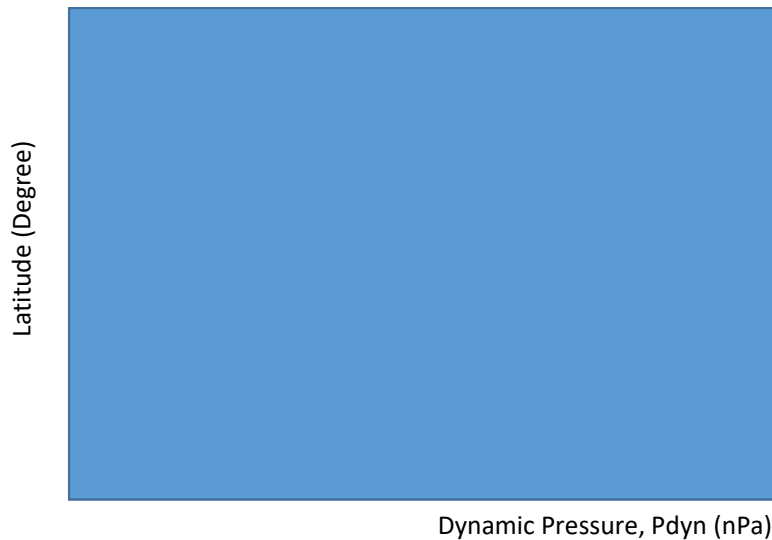
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**5. Scatter plot of Rmp versus Auroral Latitude (Lambda).**

Interpretation of the plot above. How does auroral latitudes change with Rmp. When (under what conditions) can I expect the aurora will occur at high latitudes or when (under what conditions) can I expect the aurorae will occur at low latitudes

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**6. Scatter plot of Pdyn versus Auroral latitude (lambda).**

Interpret the plot above

You can arrange your plots as you wish depending on size of your panels. Above are just examples and there is no specific arrangement meant when placing each panel. Give the title of each Table panels.

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**7. Table**

| Title of your table                 |      |        |     |     |                    |
|-------------------------------------|------|--------|-----|-----|--------------------|
|                                     | Mean | Median | Max | Min | Standard Deviation |
| <b>Bz <math>\geq</math> 0 (nT)</b>  |      |        |     |     |                    |
| <b>Bz &lt; 0 (nT)</b>               |      |        |     |     |                    |
| <b>Pdyn (nPa)</b>                   |      |        |     |     |                    |
| <b>Rmp (Re)</b>                     |      |        |     |     |                    |
| <b><math>\Delta</math> (degree)</b> |      |        |     |     |                    |

**8. Summary and Conclusions:** Give a summary on what you have done and what your findings/results are.

**9. Learning outcomes:** Give a list of what you have learned in this labwork other than your scientific findings stated above in part (8).

I gained following talents during this labwork.

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2.

3.

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