

- **Mario Bisi - STFC UKRI**19:19

...The link to the dynamic agenda is here:

https://docs.google.com/document/d/1g_33LY6XD2sE69W9hQQtGOBsZWxImUrCy4qpbXC9gMc/edit...If you have any questions - please raise your virtual hand and/or type it in the chat and we will try to bring you in. Thanks!...

-  **Manuela Temmer**20:28

How long back in time you look for preconditioning?

-  **Mario Bisi - STFC UKRI**24:11

Thanks Manuela - @Hermann, maybe you can answer this in real time?

-  **Vania Jordanova**38:11

Will there be inclusion of physics-based models of the inner magnetosphere? I think these are important for MI coupling.

-  **Manuela Temmer**39:07

Maybe to talk about ICME „substructures“, instead or in addition to „transient events“ to make that more clear for S-H cluster people.

-  **Yihua Zheng**39:55

Just curious, Herman and Bob, how many pages are you anticipating for your paper?

-  **Bob R.**44:20

The aurora section alone is 8 pages right now. It can be shortened, but my guess is the entire paper will be about 30 pages.

-  **Opgenoorth**48:08

@ Manuela, we can determine that as we go along, some people say we need a week if there was a previous storm, some people say a day is good for normal Solar wind. We should discuss...

-  **Opgenoorth**50:10

@ Vania I leave that to the model authors but agree that we should include those, even if not as extensive as the outer magnetosphere...

-  **Opgenoorth**50:26

@ Chigo - sorry I missed you...

-  **Dibyendu Sur**51:14

@ Vania, thanks for the suggestion. We shall definitely introduce physics based models in this chapter.

-  **Opgenoorth**51:27

@ Manuela agreed, internal structure is much better than transient, because the ICME structure lives quite long. It only looks like a transient at L1 (-)

-  **Vania Jordanova**53:57

@Dibyendu great! Let me know if you need help with it 😊

-  **Dibyendu Sur**55:17

@ Vania, thanks a lot, please provide your email address

-  **Mario Bisi - STFC UKRI**01:10:42

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Thanks!...

-  **Yihua Zheng**01:32:07

ring current and auroral energy electrons both contribute to surface charging

-  **Ola Abu Elezz**01:44:44

Hi, Prof Pierre,

-  **Mario Bisi - STFC UKRI**01:55:35

For those who recently joined:...The link to the dynamic agenda is here:
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Thanks!...

-  **Iwona Stanisławska**02:00:41

And there are always discusses about best formats, sources of data. Is it included somehow?

-  **David Themens**02:01:22

Have you begun reaching out to authors or recent models for inclusion in the paper/roadmap?

-  **David Themens**02:01:31

of*

-  **Mario Bisi - STFC UKRI**02:10:42

Therefore, you can now contact her directly :-)

-  **Mario Bisi - STFC UKRI**02:11:10

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-  **Maria Kuznetsova**02:25:25

How sensitive satellite drag to neutral density changes along the orbit?
How important localized density increases in auroral region?

-  **Maria Kuznetsova**02:26:12

Are addressing drag at higher altitude where additional physics is important?

-  **Opgenoorth**02:28:10

Thnaks Masha, I wanted to aks the same... KP or HP do not really link to Joule heating and Joule heating rises the neutral atmosphere. Elon Musk just learned that by loosing 40 satellites...

-  **Opgenoorth**02:29:31

@ Sean, why not using more global magnetic indices rather than ring-current indices for drag calculations. @bob do you have nay comments ?

-  **Iwona Stanisławska**02:31:04

That is why Skylab earlier finished its activity.

-  **Maria Kuznetsova**02:35:03

Satellite drag attracted a lot of attention recently when Space-X lost a lot of satellites due to increased drag during moderate storm. Are you planning to discuss this? There are many 1000s of starling satellites at about 500 km now. Should we think how to help them? What information would be useful for them for launch planning? There is also an opportunity to use their orbits for research.

-  **Jia Yue**02:36:39

At 210 km, the density increase can be significant.

-  **Marcin Pilinski**02:37:44

We have come to the same conclusion here @Sean

-  **Bob R.**02:44:45

AE relates very well to global Joule heating, at least according to model results. Joule heating also correlates well with cross-polar cap potential, and to the globally integrated field-aligned current strength, which is one of the AMPERE data products.

-  **David Themens**02:44:55

HASDM?

-  **Marcin Pilinski**02:46:46

Nice summary @Sean.

-  **Evgeny Mishin (AFRL/RV)**02:47:45

actually, the in situ data, e.g., from CHAMP and GRACE, show that the neutral atmosphere upwelling by more than 50 -100 km occurs within 10-15 min after SSC and or substorm breakups. Furthermore, it was shown that the neutral density at 400 km follows Dst (ring current)

-  **sean bruinsma**02:47:59

@Jia: for the conditions of that day, and at 210 km, increase is around 50% - our margins are much larger.

-  **Maria Kuznetsova**02:48:09

Arnaud, you can drop your presentation here:
<https://drive.google.com/drive/folders/1f6R4Ziudj1PcTfMURJZXFTokqpVOKXBn>

-  **sean bruinsma**02:50:02

@Bob: AE was tested, Dst, PC, Kp, Km in correlation studies with Density observations. Kp leads to highest correlations.

-  **sean bruinsma**02:51:02

@David: what is the question about HASDM?

-  **David Themens**03:03:54

@Sean: Regarding the indices, have you considered integrated/pseudo versions of those indices, which are often used by empirical ionospheric models to represent storm effects?

-  **Mario Bisi - STFC UKRI**03:04:13

@Arnaud: Can you past the link for registration for the Python in Heliophysics Summer School in the chat please?

-  **Arnaud**03:06:12

<https://www.cosmos.esa.int/web/ihdea/2022-pyh-c-summer-school>

-  **Mario Bisi - STFC UKRI**03:06:18

Thanks!

-  **Samuel Schonfeld**03:08:22

Brian Thomas at Goddard is working on something like a "Helio Cloud" that would do something very similar to what you're describing, Masha.

-  **Shing Fung**03:11:16

Correct! HelioCloud is here already.

-  **Mario Bisi - STFC UKRI**03:14:15

Thank you everyone.

-  **Manuela Temmer**03:15:17

Thanks for the interesting discussions! Bye!