

# Swarm 9th DQW Agenda

Faculty of Civil Engineering, CTU in Prague, Thákurova 7/2077, 166 29 Praha 6, CZ

September 16th-20th

## Day 1 Monday 16/09/2019

**Location: Room B-286**

12:30	14:00	Registration	
		<b>Session 1: Mission overview</b>	<b>Chairs: Anja Stromme &amp; Jerome Bouffard</b>
14:00	14:10	Welcome by LOC and logistic information	Aleš Bezděk/Josef Sebera
14:10	14:25	Swarm - status overview and plans for the extended mission	Anja Stromme
14:25	14:40	Swarm Data Quality Status and DQW objectives	Jerome Bouffard
14:40	14:55	Opportunity of synergies between Swarm and other ESA science missions	Rune Floberghagen
14:55	15:10	Swarm after (almost) six years in space - Towards the second half of a Solar Cycle	Nils Olsen
15:10	15:25	Magnetic package instruments and processors	Enkelejda Qamili
15:25	15:40	Electric field instrument and processors	Filomena Catapano
15:40	15:55	GPS and Accelerometer instruments and processors	Christian Siemes
15:55	16:15	Coffee break	
16:15	16:30	Flight Operations Segment Status	Ignacio Clerigo
16:30	16:45	Constellation status of the Swarm mission	Detlef Sieg
16:45	17:00	Cassiope (Swarm-E) Status and Operational Overview	Andrew Howarth
17:00	17:15	Swarm PDGS Status & Outlook	Antonio de la Fuente
17:15	17:30	e-POP Data Access Updates	Andrew White
17:30	17:45	VirES for Swarm - Data Visualization Platform and Virtual Research Environment - Status	Martin Paces
17:45	18:00	Status of the NanoMagSat project	Gauthier Hulot
18:00	18:15	Macau Satellite Project	Keke Zhang

**18:15-19.30 Ice Breaker with welcome speech by IAGA president**  
**Location: Atrium at the entrance to Faculty of Civil Engineering**

**Day 2 Tuesday 17/09/2019****Location: Room B-286****Session 2: Magnetic field measurements (splinter session)****Chair: Enkelejda Qamili**

08:30	08:45	The Vector Field Magnetometer stability and status on the three Swarm satellites	Jose M. G. Merajo
08:45	09:05	Latest Results on dB_Sun Characterisation	Lars Toffner Clausen
09:05	09:25	Modified thermoelectric model of the ASM blanket with uncovered nadir rivet	Peter Brauer
09:25	09:45	Towards correcting ASM data for the Sun-related thermoelectric effect	Pierre Vigneron
09:45	10:05	Simulations of magnetic field disturbance at the ASM location	Gabriela Blaga

**10:05 10:30 Discussion and Recommendations****10:30 11:00 Coffee break with VirES/VRE Demo [Part1/2]- Hall Martin Paces**

11:00	11:15	Status of the ASM-V and ASM Burst mode data	Rémi Madelon
11:15	11:30	Solidity and performance of the thermal model and its future ramifications	Matija Herceg
11:30	11:45	Results of the radiation monitor and the implications for the associated drift shells	John Leif Jørgensen
11:45	12:00	Improved Swarm-Echo Magnetic Field Data Products	David Miles / Robert Broadfoot
12:00	12:15	More about ePOP calibration	Martin Rother

**12:15 13:00 Discussion and Recommendations****13:00 14:00 Lunch****Session 3: Electric field measurements (splinter session)****Chair: Filomena Catapano**

14:00	14:15	LP overview and status	Stephan Buchert
14:15	14:30	Swarm electron temperature analysis over four years: statistical occurrence of "bad data" as a function of latitude, local time and orbits	Igino Coco
14:30	14:45	Kinetic Simulations of the Swarm Langmuir Probes in non ideal conditions	Pedro Alberto Resendiz Lira
14:45	15:00	Effective Ion Mass and Bulk Flow Velocity from EFI/LP	Matthias Foerster
15:00	15:15	Recent science from Swarm EFI and ePOP SEI	David Knudsen

**15:15 15:45 Discussion and Recommendations****15:45 16:15 Coffee break with VirES/VRE Demo [Part2/2]- Hall Martin Paces**

16:15	16:30	EFI TII drift dataset	Johnathan Burchill
16:30	16:45	Assessment of Swarm EFI vertical ion drifts at high latitudes	Alexei Kouznetsov
16:45	17:00	High latitude ion and neutral composition in the context of Swarm data analysis	Andrew Yau
17:00	17:15	Assessment of a technique to validate / optimize the electric field and conductance on multiple Swarm events	Ivan Ionut Madalin
17:15	17:30	Cassiope Fast Auroral Imager New Data Product	Andrew Howarth

**17:30 18:00 Discussion and Recommendations****18:00 18:30 Open discussion on future Swarm constellation Detlef Sieg and All**

**Day 2 Tuesday 17/09/2019****Location: Room C-202****Session 4: GPSR and accelerometer (splinter session)****Chair: Christian Siemes**

08:30	08:45	Swarm accelerometer 2013-2018 data quality and processing	Sergiy Svitlov
08:45	09:00	Update on aerodynamic and gas-surface interactions modelling for the Swarm L2 density product	Günther March
09:00	09:15	Swarm L2 thermospheric density products: last update and current status	Elisabetta Iorfida
09:15	09:30	Swarm GPS densities rapid evaluation	Christian Siemes
09:30	09:45	Ambiguity-fixed SWARM orbits based on different bias products	Heike Peter
09:45	10:00	Investigation of artifacts in carrier phase observations	Lucas Schreiter
10:00	10:15	Multi-approach gravity field models from Swarm GPS data	Pieter Vissser

**10:15 10:30 Discussion and Recommendations**

10:30	11:00	Coffee break with VirES/VRE Demo [Part1/2] - Hall	Martin Paces
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11:00	11:15	Current status of Swarm-E GAP data products and science applications	Chris Watson
11:15	11:30	CASSIOPE star sensor data combination	Christian Siemes
11:30	11:45	CASSIOPE orbit and attitude determination	Oliver Montenbruck
11:45	12:00	Radio Receiver Instrument on e-POP (Swarm-E) Business	Gordon James

**12:00 12:30 Discussion and Recommendations**

12:30	14:00	Lunch	
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14:00	15:45	<b>VirES &amp; VRE Individual Training and Practice /Room C-202</b>	<b>Martin Paces</b>
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15:45	16:15	Coffee break with VirES/VRE Demo [Part2/2]- Hall	Martin Paces
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**Day 3 Wednesday 18/09/2019****Location: Room B-286**

<b>Session 5: Advanced products for internal fields</b>			<b>Chairs: Jakub Velínský &amp; Chris Finlay</b>
08:30	08:45	Geomagnetic Virtual Observatories: Monitoring long-term field variations with Swarm data	Chris Finlay
08:45	09:00	An assessment of Cryosat platform magnetometer data using geomagnetic virtual observatory data series	Magnus Danel Hammer
09:00	09:15	Using secular variation gradient data to infer core surface flows	Kathy Whaler
09:15	09:30	Extending Geomagnetic Field Modelling to Include Co-estimation of Calibration Parameters of Vector Field Data	Clemens Kloss
09:30	09:45	Core field modeling using ASM-V data	Pierre Vigneron
09:45	10:00	Sequential modelling of the Earth core magnetic field: a candidate to the IGRF-13	Guillaume Ropp
10:00	10:15	The GFZ Mag.num field model as a parent model for an IGRF candidate	Martin Rother
10:15	10:45	Coffee break	
10:45	11:00	Use of Swarm data in the development, validation and assessment of the World Magnetic Model	Arnaud Chulliat
11:00	11:15	World Magnetic Model 2020	Michael Paniccia
11:15	11:30	Mantle conductivity time-domain chain: Progress report after 5 years	Jakub Velínský
11:30	11:45	A 1D electrical conductivity and temperature profil of the Earth's mantle	Erwan Thebault
11:45	12:00	An extended lithospheric magnetic field model based on Swarm, CHAMP and WDMAM data	Erwan Thebault
12:00	12:15	Models of the lithospheric time variation and corrections to satellite data	Eldar Baykiev
12:15	12:30	Removing the Auroral Oval 'Noise' from the Crustal Field 'Signal' in Satellite Magnetic Data Using an Equal-Area Grid	Ashley Smith
<b>12:30</b>	<b>13:00</b>	<b>Discussion and Recommendations</b>	
13:00	14:00	Lunch	
<b>Session 6: Advanced products for external fields</b>			<b>Chairs: Karl M. Laundal &amp; Lorenzo Trenchi</b>
14:00	14:15	Overview of new Swarm DISC projects	Line Drube
14:15	14:30	Time-scale dependence of the Average Magnetic field and Polar current System (AMPS) model	Karl M. Laundal
14:30	14:45	New Swarm products: Auroral oval and electrojet boundaries	Kirsti Kauristie
14:45	15:00	Ionospheric currents at mid- and low-latitudes derived from 5 Years of Swarm observations	Guram Kervalishvili
15:00	15:15	Advances on the Level-2 equatorial electrojet product	Patrick Alken
15:15	15:30	Extended climatological model of non-polar geomagnetic daily variations: preliminary results	Arnaud Chulliat
15:30	15:45	Recent results and status on the Ionospheric Plasma IRregularities (IPIR) data product	Yaqi Jin
15:45	16:15	Coffee break	

16:15	16:30	BGS development of enhanced Fast-track Magnetosphere Model	William Brown
16:30	16:45	New ULF wave indices derived from Swarm observations to investigate magnetosphere-ionosphere coupling	Georgios Balasis
16:45	17:00	Assessment of the balance between plasma and magnetic pressure across equatorial plasma depletions	Juan Rodriguez-Zuluaga
17:00	17:15	ELF whistlers analysis for ionospheric modelling: Initial results of the ILGEW project	Pierdavide Coisson
17:15	17:30	Analysis of field-aligned currents compared to ground and other space measurements	Malcolm Dunlop
17:30	17:45	Small scale perturbations of plasma density on the edges of equatorial anomaly	Ewa Slominska
<b>17:45</b>	<b>18:15</b>	<b><i>Discussion and Recommendations</i></b>	

**19:30 - 23:00 Social dinner at the Original Prague Brewery**

**Day 4 Thursday 19/09/2019****Location: Room B-286****Session 7: Swarm products for space physics/ weather applications****Chair: Lorenzo Trenchi**

08:30	08:45	Distributed Spacecraft Autonomy: Reactive, Coordinated Science with Cross-Linked Satellites	Daniel Cellucci
08:45	09:00	Investigating dynamical complexity using a Swarm-derived Dst index and information-theoretic measures	Georgios Balasis
09:00	09:15	Swarm as a platform for ion outflow studies	Spencer Hatch
09:15	09:30	Timescales of Birkeland currents driven by the IMF	John Coxon
09:30	09:45	On the RODI and Ionospheric Electron Density Spectral Features During Geomagnetic Storms	Paola de Michelis
09:45	10:00	Observations of intense mid-latitude Pc1 waves during geomagnetic storms: Towards the use of Swarm for radiation belt science	Ivan Pakhotin
10:00	10:15	New space weather information exploited from the Swarm observations: Introduction of the EPHEMERIS project	Balázs Heilig
10:15	10:30	VERA: Vertical Coupling in the Earth's Atmosphere at Mid and High Latitudes	Yosuke Yamazaki

**10:30 10:45 Discussion and Recommendations**

10:45 11:00 Coffee break

**Session 8: Multi-mission synergies - Part 1****Chair: Claudia Stolle**

11:00	11:15	Towards a real swarm of magnetic satellites - recent progress in exploitation of platform magnetometer satellite data	Nils Olsen
11:15	11:30	Towards better description of spatio-temporal structure of magnetospheric ring current using LEO sat. platform magnetometers	Alexey Kuvshinov
11:30	11:45	Co-estimation of core field and fluxgate calibration parameters	Patrick Alken
11:45	12:00	Topside ionosphere and plasmasphere derived from SWARM and Sentinel GPS data	Lucas Schreiter
12:00	12:15	Introduction of the PRODEX project "MAGnetosphere dynamics and coupling to Ionosphere as observed by Cluster and Swarm - MAGICS"	Octav Marghita
12:15	12:30	SMILE (Solar wind-Magnetosphere-Ionosphere Link Explorer) mission status	Eric Donovan
12:30	12:45	COST-G combination of Swarm gravity fields from different analysis centers	Ulrich Meyer
12:45	13:00	MagQuest Results: A \$1.2 million competition to advance how we measure Earth's magnetic field.	Angelique Garcia

13:00 14:00 Lunch

**14:00 14:15 Discussion and Recommendations****Session 9: Multi-mission synergies - Part 2: Highlights on CSES joint analyses****Chairs: Gauthier Hulot & Zeren Zhima**

14:15	14:30	Correct the instability of vector magnetic field linear parameters	Bin Zhou
14:30	14:45	In-orbit results of the Coupled Dark State Magnetometer aboard the China Seismo-Electromagnetic Satellite	Andreas Pollinger
14:45	15:00	On the possibility of building an IGRF candidate using CSES magnetic data	Gauthier Hulot
15:00	15:15	Instrumental considerations for the understanding of Swarm/ CSES ratio in plasma density measurements.	Piero Diego

15:15	15:30	The Langmuir Probe on CSES, Swarm, DEMETER and other satellites	Xuemin Zhang
15:30	15:45	The equatorial plasma bubble observed by CSES and Swarm	Chao Xiong
15:45	16:00	Coffee break	
16:00	16:15	The quasiperiodic waves recorded by CSES satellite	Zeren Zhima
16:15	16:30	HPM operation status in orbit	Bingjun Cheng
16:30	16:45	EMIC fluctuations observed by CSES and SWARM satellites during magnetic storms	Yiteng Zhang
16:45	17:00	The precipitation of energetic particles caused by NWC	Wei Chu
<b>17:00</b>	<b>17:15</b>	<b><i>Discussion and Recommendations</i></b>	
		<b>Session 10: data processing analysis and data visualization</b>	<b>Chair: Nils Olsen</b>
17:15	17:30	viresclient: Programmatic access to Swarm for rapid and reusable research	Ashley Smith
17:30	17:45	Python package for FAC density estimations with Swarm	Adrien Blagau
17:45	18:00	A machine learning approach for automated ULF wave recognition	Constantinos Papadimitriou
18:00	18:15	Anomaly Detection for Swarm Electromagnetic data using a Deep Learning Approach	Yaxin Bi
<b>18:15</b>	<b>18:30</b>	<b><i>Discussion and Recommendations</i></b>	

**Day 5 Friday 20/09/2019****Location: Room B-286****Session 11: Summaries , Recommendations & Future****Chair: Jerome Bouffard**

09:00	09:15	Summary & Recommendation session 2	Enkelejda Qamili
09:15	09:30	Summary & Recommendations session 3	Filomena Catapano
09:30	09:45	Summary & Recommendations on session 4	Christian Siemes
09:45	10:00	Summary & Recommendations on session 5	Jakub Velímský and Chris Finlay
10:00	10:15	Summary & Recommendations on session 6	Karl M. Laundal and Lorenzo Trenchi
10:15	10:45	Coffee break	
10:45	11:00	Summary & Recommendations on session 7	Lorenzo Trenchi
11:00	11:15	Summary & Recommendations on session 8	Claudia Stolle
11:15	11:30	Summary & Recommendations on session 9	Gauthier Hulot and Zeren Zhima
11:30	11:45	Summary & Recommendations on session 10	Nils Olsen
11:45	12:00	Open discussion for the next Swarm DQW format/content	<u>All</u>
12:00	12:05	Meeting Conclusions	Jerome Bouffard and Anja Stromme