IAG Commission 1 "Reference Frames"

REFAG 2022 – Scientific program

DAY 1 – Monday, 17.10.2022

07:30 – 09:00	*Registration at the Electra Palace Hotel*	
09:00 – 09:15	*Opening Session – Welcome (C. Kotsakis, President of IAG Commission 1)*	
09:15 – 10:00	**Session 3 – Regional Reference Frames and their Applications** *Chairs: C. Bruyninx and M. Craymer*	
09:15 – 09:35	M. Lidberg, C. Bruyninx, E. Brockmann, R. Dach, A. Kenyeres, K. Kollo, J. Legrand, T. Liwosz, B. Männel, R. Pacione, M. Sacher, J. Schwabe, W. Söhne, C. Völksen, Z. Altamimi, A. Caporali, J. Zurutuza, M. Poutanen and J-A. Torres	Advancing the geodetic infrastructure in Europe through EUREF **(key paper)**
09:35 – 09:55	S.M. Alves-Costa, L. Sanchez, D. Pinon, J.A. Tarrio-Mosquera, G. Guaimaraes, D. Gomez, H. Drewes, M.V. Mackern, E. Antokoletz, A.C.O.C de Matos, D. Blitzkow and A. da Silva	Status of the SIRGAS reference frame: recent developments and new challenges **(key paper)**
09:55 – 10:00	Discussion	
10:00 – 10:30	***Coffee break***	
10:30 – 12:00	**Session 3 – Regional Reference Frames and their Applications** *Chairs: C. Bruyninx and M. Craymer*	
10:30 – 10:50	R. Stanaway, C. Crook, K. Kelly and R. Lott	Deformation Models - Progress with development of an OGC Standard **(key paper)**
10:50 – 11:05	R. Steffen, A. Kenyeres, H. Steffen and M. Lidberg	EuVeM2022: A 3D GNSS velocity field for Europe
11:05 – 11:20	L. Huisman and H. de Ligt	Validation of reference frame consistency of GNSS service products
11:20 – 11:35	J. Kröger, T. Kersten, Y. Breva and S. Schön	How Do Different Phase Center Correction Values Impact GNSS Reference Frame Stations?

11:35 – 11:50	J. Han, H. Yun, S.J. Lee, M.H. Lee and C. Shen	Versatile Processing Program for RINEX Files
11:50 – 12:00	Discussion	
12:00 – 13:30	*Lunch break*	
13:30 – 15:00	**Session 3 – Regional Reference Frames and their Applications** *Chairs: C. Bruyninx and M. Craymer*	
13:30 – 13:45	J.A. Tarrío, J. Inzunza, C. Caceres, M. Caverlotti, V. Vasquez, F. Isla, G. Jeldres, R. Urrutia and C. Mardones	Transition from PSAD56/SAD69 to SIRGAS. Toward a kinematic reference frame for mining in Chile
13:45 – 14:00	C. Shen, H. Yun, S.J. Lee, M.H. Lee and J. Han	Comparison Analysis of Network Adjustment of 5000 Unified Control Points in South Korea using Bernese and GAMIT/GLOBK
14:00 – 14:15	E. Azcue, M. Blanco, J. Grau, D. Gómez and J-A. Sánchez-Sobrino	ETRS89 Realization and Maintenance in Spain
14:15 – 14:30	D. Anastasiou, X. Papanikolaou and M. Tsakiri	On the stability of regional reference frames in Greece using GNSS permanent stations
14:30 – 14:45	D. Ampatzidis, E. Tzanou, N. Demirtzoglou and G.S. Vergos	Strategies for the optimal combination between local 3D modern GNSS and 2D classical networks, expressed in different reference frames: Case study in Greece
14:45 – 15:00	A. Alqahtani, R. Grebenitcharsky, S. Alshahrani, I. Golubinka, M. Alqarni and S. Alqurishi	Saudi Arabia - National Spatial Reference System (SANSRS)
15:00 – 15:30	*Coffee break*	
15:30 – 17:00	Poster viewing and discussion	
18:00 – 20:00	***Ice-breaker reception (Electra Palace Hotel, roof garden)***	

DAY 2 – Tuesday, 18.10.2022

08:30 – 10:00	**Session 4 – Celestial Reference Frames and Earth Orientation Parameters** *Chair: B. Soja*	
08:30 – 08:50	T. Kur, J. Śliwińska, J. Nastula, H. Dobslaw, M. Wińska and A. Partyka	Annual summary of the Second Earth Orientation Parameters Prediction Comparison Campaign (2nd EOP PCC) **(key paper)**
08:50 – 09:05	L. Lengert, D. Thaller, C. Flohrer, A. Girdiuk and H. Hellmers	On the improvement of the consistency and the temporal regularity of combined ERP time series
09:05 – 09:20	L. Biskupek, V.V. Singh, J. Müller and M. Zhang	Potential of Lunar Laser Ranging for the determination of Earth orientation parameters
09:20 – 09:35	L. Kern, M. Schartner, J. Böhm, S. Böhm, A. Nothnagel and B. Soja	The importance of accurate a priori information for VLBI Intensive sessions
09:35 – 09:50	M. Schartner, L. Petrov, C. Plötz, F.G. Lemoine, E. Terrazas, I-D. Herrera Pinzón, J.L. Dorman and B. Soja	VGOS VLBI Intensives between MACGO12M and WETTZ12M for the rapid determination of UT1-UTC
09:50 – 10:00	Discussion	
10:00 – 10:30	*Coffee break*	
10:30 – 11:15	**Session 4 – Celestial Reference Frames and Earth Orientation Parameters** *Chair: B. Soja*	
10:30 – 10:45	M. Karbon, S. Belda, J.M. Ferrandiz and A. Escapa	A Celestial Reference Frame based on parameterized source positions
10:45 – 11:00	S. Belda, M. Karbon, J.M. Ferrandiz and A. Escapa	The impact of parameterized source positions on the free core nutation
11:00 – 11:15	L. Petrov	Single-band absolute astrometry
Switch to Session 5		
11:15 – 12:00	**Session 5 – Usage & Challenges of Reference Frames for Earth Science Applications** *Chairs: J-P. Boy and S. Glaser*	
11:15 – 11:35	S. Rudenko, M. Bloßfeld, J. Zeitlhöfler, A. Kehm, D. Dettmering, M. Glomsda, D. Angermann and M. Seitz	Application of the ITRS2020 realizations for precise orbit determination of SLR and altimetry satellites **(key paper)**
11:35 – 11:50	A. Girdiuk, D. Thaller, G. Engelhardt and D. Ullrich	ITRF2020 application in the geodetic products for IVS
11:50 – 12:00	Discussion	
12:00 – 13:30	*Lunch break*	

	Session 5 – Usage & Challenges of Reference Frames for Earth Science Applications	
13:30 – 15:00	**Session 5 – Usage & Challenges of Reference Frames for Earth Science Applications** *Chairs: J-P. Boy and S. Glaser*	
13:30 – 13:45	C. Bruyninx, R. Fernandes, M. Lidberg and W. Söhne	EUREF's contribution to EPOS' GNSS Services
13:45 – 14:00	K. Balidakis, R. Dill and H. Dobslaw	Predicting Non-tidal Loading Contributions Induced by Environmental Loading
14:00 – 14:15	J. Nicolas, J. Verdun, J-P. Boy, F. Durand, A. Koulali and P. Clarke	Improved Hydrological Loading Models in South America: Analysis of 3D GPS Displacements Using M-SSA
14:15 – 14:30	H.P. Kierulf, J. Kohler, J-P. Boy, E.C. Geyman, A. Memin, O. Omang, H. Steffen and R. Steffen	Glacial induced uplift variations in Svalbard – is it a challenge for the reference frame?
14:30 – 14:45	A. Klos, J. Bogusz, R. Pacione, V. Humphrey and H. Dobslaw	Spatio-temporal consistency of the stochastic component of the ZTD time series over Europe
14:45 – 15:00	Discussion	
15:00 – 15:30	**Coffee break**	
15:30 – 16:15	**Session 5 – Usage & Challenges of Reference Frames for Earth Science Applications** *Chairs: J-P. Boy and S. Glaser*	
15:30 – 15:45	J. Freymueller	Reference Frame and Identifying Localized vs Regional Deformation: Examples from Hawaii and the North Atlantic
15:45 – 16:00	C. Danezis, D. Kakoullis, K. Fotiou, M. Pekri, M. Chatzinikos, C. Kotsakis, M. Nikolaidis, G. Ioannou, M. Eineder, R. Brcic, A. Christofe, G. Melillos, Y. Vacanas, M. Christoforou, S. Pilidou, M. Tzouvaras, C. Papoutsa, K. Themistocleous, D. Hadjimitsis	The Establishment of the CyCLOPS Integrated Strategic Research Infrastructure Unit for Deformation Monitoring Activities: Considerations, Performance Assessment and Initial Results
16:00 – 16:15	K. Aspioti, D. Anastasiou, M. Gianniou, V. Andritsanos and V. Pagounis	Velocity and strain field estimation from episodic GNSS campaigns (2012-2021) for the region of Attica, Greece
16:15 – 17:00	Poster viewing and discussion	

DAY 3 – Wednesday, 19.10.2022

08:30 – 10:00	**Session 1 – Global Reference Frame Theory, Concepts and Computations** *Chairs: X. Collilieux and E.C. Pavlis*	
08:30 – 08:50	Z. Altamimi, P. Rebiscung, X. Collilieux, L. Métivier and K. Chanard	ITRF2020: An overview of its features and results **(key paper)**
08:50 – 09:05	P. Rebischung, Z. Altamimi, X. Collilieux, L. Métivier and K. Chanard	ITRF2020 seasonal geocenter motion model
09:05 – 09:20	E.C. Pavlis, V. Luceri, A. Basoni, D. Sarrocco, M. Kuzmicz-Cieslak, K. Evans and G. Bianco	The ILRS Analysis Standing Committee Contribution to ITRF2020
09:20 – 09:35	C. Kotsakis and M. Chatzinikos	Evaluation of common-mode errors in global multi-year frames: A case study in the ITRF solution series
09:35 – 09:50	J. Bogusz, A. Klos and G. Moreaux	Noise evolution in IDS contributions: from ITRF2014 to ITRF2020
09:50 – 10:00	Discussion	
10:00 – 10:30	*Coffee break*	
10:30 – 12:00	**Session 1 – Global Reference Frame Theory, Concepts and Computations** *Chairs: X. Collilieux and E.C. Pavlis*	
10:30 – 10:50	M. Seitz, M. Bloßfeld, M. Glomsda, D. Angermann, S. Rudenko and J. Zeitlhöfler	DTRF2020: the ITRS 2020 realization of DGFI-TUM **(key paper)**
10:50 – 11:10	R. Gross, C. Abbondanza, T.M. Chen, M. Heflin and J. Parker	Sequentially Estimating and Updating Terrestrial Reference Frames **(key paper)**
11:10 – 11:25	M. Moreira, E. Azcue, M. Karbon, S. Belda, V. Puente, R. Heinkelmann, D. Gordon and J. Ferrándiz	VLBI-based assessment of the consistency of the conventional EOP series and the terrestrial reference frames
11:25 – 11:40	D. Thaller, C. Flohrer, G. Engelhardt, A. Girdiuk, H. Hellmers, D. König, S. Modiri, S. Bachmann, W. Dick, S. Geist, M. Goltz, L. Lengert, S. Schneider-Leck and D. Ullrich	The contributions by BKG to the realization of the global geodetic reference frame
11:40 – 11:55	L. Sanchez, J. Huang, R. Barzaghi and G.S. Vergos	Advances in the determination of a global unified reference frame for physical heights
11:55 – 12:00	Discussion	
12:00 – 13:30	*Lunch break*	
13:30 – 15:15	**Session 1 – Global Reference Frame Theory, Concepts and Computations** *Chairs: X. Collilieux and E.C. Pavlis*	
13:30 – 13:50	F. Pollinger, C. Eschelbach, C. Courde, L. Garcia-Asenjo, J. Guillory, P.O. Hedekvist,	The GeoMetre project: a comprehensive study to advance local tie metrology

	U. Kallio, T. Klügel, M. Lösler, P. Neyezhmakov, D. Pesce, M. Pisani, J. Seppä, R. Underwood, K. Wezka and M. Wiśniewski	**(key paper)**
13:50 – 14:05	X. Collilieux, Z. Altamimi, P. Rebischung, L. Métivier, K. Chanard and M. de la Serve	Consistency evaluation of seasonal signals in ITRF2020
14:05 – 14:20	B. Männel, S. Glaser, A. Brandt and H. Schuh	The impact of non-tidal surface loading deformation on GNSS coordinate time series
14:20 – 14:35	J-P. Boy, P. Rebischung and Z. Altamimi	Comparison of ITRF2020 residual displacements with environmental loading models
14:35 – 14:50	M. Glomsda, M. Seitz, M. Bloßfeld and D. Angermann	Effects of non-tidal loading applied in VLBI reference frames
14:50 – 15:05	P-K. Diamantidis and R. Haas	Assessment of geodetic products from 24 h VGOS sessions using ITRF2020
15:05 – 15:15	Discussion	
15:15 – 15:45	*Coffee break*	
15:45 – 17:00	Poster viewing and discussion	
19:00 – 21:00	*Conference dinner*	

DAY 4 – Thursday, 20.10.2022

08:30 – 10:00	**Session 2 – Space Geodetic Measurement Techniques** *Chairs: U. Hugentobler and K. Sośnica*	
08:30 – 08:45	M. Poutanen, M. Bilker-Koivula, J. Eskelinen, U. Kallio, N. Kareinen, H. Koivula, S. Lahtinen, J. Näränen, J. Peltoniemi, A. Raja-Halli and N. Zubko	Upgrading the Metsähovi Geodetic Research Station
08:45 – 09:00	V. Husson, P. Dunn, J. Laing, T. Oldham and T. Carpenter	NASA SLR Systematic Error Analysis
09:00 – 09:15	P. Dunn, T. Oldham and V. Husson	Accuracy Improvement to SLR network stations from Reference Frame Analysis
09:15 – 09:30	R. Handirk, P-K. Diamantidis, K. Le Bail, T. Nilsson and R. Haas	Assessment of thermal deformation modelling for the geodetic VLBI telescopes at Onsala Space Observatory
09:30 – 09:45	L. Petrov, J. York, J. Skeens, R. Ji-Cathriner, D. Munton and K. Herrity	Precise VLBI/GNSS ties with micro-VLBI
09:45 – 10:00	Discussion	
10:00 – 10:30	***Coffee break***	
10:30 – 12:00	**Session 2 – Space Geodetic Measurement Techniques** *Chairs: U. Hugentobler and K. Sośnica*	
10:30 – 10:50	K. Le Bail, T. Nilsson, R. Haas and F.L. Nyström	Understanding the change in the VLBI scale behavior **(key paper)**
10:50 – 11:05	P. Steigenberger and O. Montenbruck	Consistency of Galileo Satellite Antenna Phase Center Offsets
11:05 – 11:20	K. Sośnica, R. Zajdel, G. Bury and K. Kazmierski	Draconitic, tidal, and orbital aliasing signals in multi-GNSS solutions
11:20 – 11:35	H. Wolf, J. Böhm, U. Hugentobler and A. Nothnagel	Adjustment of orbital elements of Galileo satellite arcs with simulated VLBI observations
11:35 – 11:50	A. Reinhold, P. Schreiner, R. Koenig and K-H. Neumayer	Precise orbit and reference frame determination using multiple altimetry satellite missions with DORIS technique
11:50 – 12:00	Discussion	
12:00 – 13:30	***Lunch break***	
13:30 – 15:00	**Session 2 – Space Geodetic Measurement Techniques** *Chairs: U. Hugentobler and K. Sośnica*	
13:30 – 13:50	P. Schreiner, N. Mammadaliyev, S. Glaser, R. Koenig, K-H. Neumayer and H. Schuh	On how multi-technique co-location in space can contribute to the Global Geodetic Observing System goals

		(key paper)
13:50 – 14:05	S. Raut, S. Glaser, N. Mammadaliyev, P. Schreiner, R. König and H. Schuh	Assessing the potential of VLBI transmitters on next generation GNSS satellites for geodetic products
14:05 – 14:20	G. Bury, K. Sośnica, R. Zajdel, D. Strugarek and U. Hugentobler	Global reference frame realization onboard GNSS satellites
14:20 – 14:35	R. Zajdel, P. Steigenberger and O. Montenbruck	Quality assessment of the BeiDou-3 phase center offset calibrations in terms of the realization of the terrestrial reference
14:35 – 14:50	W. Huang, B. Männel, A. Brack and H. Schuh	GNSS-based scale realization by integrating LEOs
14:50 – 15:00	Discussion	
15:00 – 15:30	*Coffee break*	
15:30 – 16:30	**Session 2 – Space Geodetic Measurement Techniques** *Chairs: U. Hugentobler and K. Sośnica*	
15:30 – 15:45	R. Haas, P-K. Diamantidis, G. Elgered, J. Johansson and T. Nilsson	Assessment of parameters describing the signal delay in the neutral atmosphere derived from VGOS R&D sessions
15:45 – 16:00	I-D. Herrera Pinzón and M. Rothacher	On the Impact of Local- and Tropospheric Ties for the Rigorous Combination of GNSS and VLBI
16:00 – 16:15	K. Balidakis, R. Sulzbach, R. Dill and H. Dobslaw	How Do Atmospheric Tidal Loading Displacements Differ Temporally as Well as between Models?
16:15 – 16:30	T. Nikolaidou, M. Ali Goudarzi, B. Donahue, E. Maia, R. Ghoddousi-Fard, O. Kamali and Y. Mireault	New generation of NRCan's Final GNSS orbit and clock products: overview and validation
16:30 – 16:45	**Closing Session**	

LIST OF POSTER PAPERS
(to be displayed throughout the duration of the conference)

Session 1 – Global Reference Frame Theory, Concepts and Computations	
J. Barneoud, C. Courde, J. Beilin, M. Germerie-Guizouarn, D. Pesce, M. Vidal, X. Collilieux and N. Maurice	Automatic determination of the SLR reference point at Côte d'Azur multi-technique geodetic Observatory
A. Mémin, J-P. Boy and A. Santamaría	Mitigating seasonal changes in terrestrial reference frame realization
D. Mayer, J. Böhm, S. Böhm and H. Krásná	The Vienna VLBI contribution to the ITRF2020

Session 2 – Space Geodetic Measurement Techniques	
H. Sert, U. Hugentobler, O. Karatekin and V. Dehant	VLBI and GNSS space-tie onboard Galileo satellites
J. Najder, K. Sośnica and D. Srugarek	Future SLR satellite constellations – a simulation study
X. Papanikolaou, M. Tsakiri, S. Nahmani and A. Pollet	Designing a DORIS processing software for orbit determination and estimation of geodetic parameters.
J. Wang, M. Ge, S. Glaser, K. Balidakis, R. Heinkelmann and H. Schuh	Impact of Tropospheric Ties in GNSS and VLBI Integrated Solution

Session 3 – Regional Reference Frames and their Applications	
D. Natsiopoulos, E. Mamagiannou, E. Tzanou, A. Triantafyllou, G.S. Vergos, I.N. Tziavos, D. Ramnalis and V. Polycrhonos	GeoNetGNSS, a newly established CORS network in Northern Greece in support of high-accuracy positioning applications
S.J. Lee, H.S. Yun, M.H. Lee, J. Han and C. Shen	Development of GNSS-based crustal Deformation monitoring system
M.H. Lee, H.S. Yun, S.J. Lee, C. Shen and J. Han	Development of the Crustal Deformation Model of the Korean Peninsula Using Polymer Regression
C. Robin, G. Banham, R. Berg, M. Craymer, G. Cross, B. Donahue, J. Harrietha, J. Huang, R.M. Paquin, R. Tardiff and Y. Thériault	Reference Frame Modernization in Canada
M. Craymer, D. Roman and P. McFarland	Modernizing Regional Reference Frames in North America: Current and Future Activities of IAG Regional Sub-Commission SC1.3c
M. Craymer, B. Amjadiparvar, M. Piraszewski, E. Lapelle and Y. Zhao	NAD83(CSRS) Version 8: A New Realization of NAD83 for Canada based on ITRF2020 and IGS Repro3 Products
C. Danezis, M. Chatzinikos and C. Kotsakis	Update of ITRF densification in Cyprus using IGS repro3 products

Session 4 – Celestial Reference Frames and Earth Orientation Parameters

H. Krasna, D. Gordon, A. de Witt and C.S. Jacobs	Earth orientation parameters determined from Very Long Baseline Array experiments conducted at K-band (24 GHz)
H. Krasna, D. Gordon, A. de Witt and C.S. Jacobs	Celestial reference frame determined from very long baseline interferometry experiments conducted at K-band (24 GHz) over the past 10 years
J. Śliwińska, J. Nastula and A. Partyka	The use of sub-monthly GRACE/GRACE-FO solutions to determine gravimetric excitation of polar motion
B. Soja, M.K. Shahvandi, M. Schartner and J. Gou	Operational prediction of Earth orientation parameters and effective angular momentum at ETH Zurich

Session 5 – Usage & Challenges of Reference Frames for Earth Science Applications

H.P. Kierulf, W. van Pelt, L. Petrov, M. Dähnn, A-S. Kirkvik and O. Omang	Seasonal glacier and snow loading in Svalbard recovered from geodetic observations
R. Steffen and E.R. Ivins	Recent advances in the modelling of glacial isostatic adjustment – A report from the IAG Joint Study Group on "Geodetic, Seismic and Geodynamic Constraints on Glacial Isostatic Adjustment"
A. Kenyeres, S. Toth, B. Magyar, J. Dehls, Y. Larsen and P. Marinkovic	Regional reference velocity model based on extended EPND solution for InSAR applications