8th International Symposium on Data Assimilation (ISDA)

Canvas Stadium, Colorado State University, Fort Collins, Colorado

6th-10th June 2022

Monday 6th June 2022

Time	Presentation
7:30-8:30	**Registration at Canvas Stadium, Colorado State University, West Entrance, 4th Floor**
8:30-8:45	**Welcome, House Rules**
8:45-9:15	**Keynote: Machine Learning and Data Assimilation – Steve Penny: Forging new frontiers in operational weather forecasting**
	Methods I:
9:15-9:30	**Jeffrey L. Anderson: Multivariate Aspects of a Quantile Conserving Ensemble Filtering Framework**
9:30-9:45	**Antoine Bernigaud,** Gratton, S. and Ehouran, S.: **L_p-norm regularization in variational data assimilation with 1 < p < 2 ; benefits and minimization of the penalized 4DVar**
9:45-10:00	**Craig H. Bishop** and Eizenberg, N.W.: **Implicit Ensemble Tangent Linear Models (IETLMs) for model differentiation**
10:00-10:30	**Coffee Break**
	Methods II:
10:30-10:45	**Diego S. Carrió** and Bishop, C.H.: **Ensemble squeeze localization for non-Gaussian variations of the EnKF**
10:45-11:00	**Man-Yau Chan,** Chen, X and Anderson, J.L.: **An Efficient Bi-Gaussian Ensemble Kalman Filter for Assimilating Satellite All-Sky Infrared Brightness Temperatures**
11:00-11:15	**Hristo G. Chipilski: Exact state estimation with arbitrarily non-Gaussian distributions**
11:15-11:30	**Michael Denhard** and Winkler, J.: **Singular vectors in data assimilation**
11:30-11:45	**Thomas Deppisch,** Bach, L. and Potthast, R.: **Histogram based bias correction.**
11:45-12:00	**Lars Nerger: Data assimilation with the hybrid nonlinear-Kalman ensemble transform filter**
12:00-13:00	**Lunch – 4th Floor**
	Methods III:
13:00-13:15	Wu,T.-C., **Milija Zupanski** and Miyoshi, T.: **Development and Evaluation of a Global Atmospheric Ensemble Data Assimilation using the Maximum Likelihood Ensemble Filter with State Space Localization**
13:15-13:30	**Ian Grooms: How the regression step in DART connects to Bayesian estimation**
13:30-13:45	**Chih-Chi Hu,** van Leeuwen, P.J., Anderson, J.L., Pulido, M.: **The Use of a Kernel-Embedding Method to Approximate the Adjoint of the Observation Operator in the Particle Flow Filter (PFF) in the Data Assimilation Research Testbed (DART)**
13:45-14:00	**Kayo Ide,** Liu, H., Lukens, K., Hoffman, R. and Garrett, K.: **Optimization and Impact Assessment of Aeolus HLOS Wind Assimilation in NOAA's Global Data Assimilation System**
14:00-14:15	Dauzickaite I., **Amos S. Lawless,** Scott, J.A. and van Leeuwen, P.J.: **Randomized preconditioning for weak-constraint 4D-Var**

14:15-14:30	**Takemasa Miyoshi,** Sun, Q., Terasaki, K. and Maejima, Y.: **From Predictability to Controllability: Control Simulation Experiment (CSE)**
14:30-16:00	**Posters and Coffee Break – 4th Floor**
	Methods IV:
16:00-16:15	**Antoine Perrot** and Pannekoucke, O.: **Exploration of Multivariate Parametric Kalman Filter Assimilation for Chemical Transport Models.**
16:15-16:30	**Flavia R. Pinheiro: Data assimilation for a two-layer quasi-geostrophic model using a particle filter combined with ensemble synchronization**
16:30-16:45	**Roland Potthast,** Vobig,K., Simmer,C. and Blahak, U.: **On Data Assimilation of Nowcasted Observations**
16:45-17:00	**R. James Purser,** Rancic, M. and De Pondeca, M.: **Assessing the performance of a Beta Planar Filter for anisotropic covariance modeling in a multigrid framework compared to Radial and Line forms of the filter**
17:00-19:30	**Icebreaker – New Belgium Porch, Canvas Stadium North Gates.**

Number	Posters
1.1	**Eviatar Bach** and Ghil, M.**: A multi-model ensemble Kalman filter for data assimilation and forecasting**
1.2	**Nisha Chandramoorthy** and Marzouk, Y.: **Dynamics-aware Bayesian filtering in chaotic systems**
1.3	**Sebastian Ertel** and Stannat, W.**: An Ensemble Kalman Bucy Filter for correlated observation noise**
1.4	**Devon Francis: The effective use of anchor observations in VarBC in the presence of model bias**
1.5	**Clementine Gas:**
1.6	**Mohamad Gharamti: A Randomized Dormant Ensemble Kalman Filter**
1.7	
1.8	**Benjamin K. Johnson,** Gharamti, M. and Hoteit, I.: **A comparison of three Kalman filters using a large AGCM Ensemble**
1.9	**Keiichi Kondo** and Miyoshi, T.: **A local particle filter based on non-Gaussian statistics using an intermediate AGCM**
1.10	**Daniel Lea: The Met Office global ocean and sea-ice ensemble forecasting system**
1.11	**Miodrag Rancic,** Purser, R.J. and De Pondeca, M.: **Application of the Multigrid Beta Filter (MGBF) on Unstructured Analysis Grids**
1.12	**Miodrag Rancic,** Purser, R.J. and De Pondeca, M.: **Formulation of an Aspect Tensor for Inhomogeneous, Anisotropic Data Assimilations with the Multigrid Beta Filter (MGBF)**
1.13	Albarakati, A., Budisic, M., **Colin Roberts,** and Van Vleck, E.: **Projected Data Assimilation for a Coupled Ocean-Atmosphere Model**
1.14	**Christian Sampson: Ensemble Kalman Filter for Non-Conservative Adaptive Meshes and Lagrangian Observations With a Joint Physics and Mesh Update.**
1.15	**Nathan W. Eizendburg,** Bishop, C.H. and Steinle, P**.: Nonlinearity and dimension reduction in the implicit local ensemble tangent linear model and adjoint**

1.16	Trzcina, E., Hanna, N., Rohm, W., Kryza, M. and **Paweł Hordyniec: TOMOREF operator as a boost to the data assimilation system**

Tuesday 7th June 2022

Time	Presentation
8:00-8:30	**Keynote 2: Clara Draper: A state-of-the-art land data assimilation system for NOAA's global numerical weather prediction system.**
	Earth System Components I:
8:30-8:45	**Nicholas Williams,** Byrne, N., Feltham, D., Van Leeuwen, P.J., Bannister, R., Schroeder, D. and Shepherd, A.: **Utilizing Cryosat-2 observations of the Arctic sea ice cover to produce a new Arctic sea ice reanalysis**
8:45-9:00	**Amey N. Vasulkar,** Verlaan, M. and Slobbe, C.: **Two step calibration of a regional tidal model.**
9:00-9:15	**Javier Amezcua: Assimilation of infrasound wave paths to constrain middle and upper atmospheric variables**
9:15-9:45	**Coffee Break**
	Earth System Components II:
9:45-10:00	**Chia-Hua Hsu,** Henze, D.K., Mizzi, A. and McDonald, B.: **How well can assimilation of geostationary trace-gas observations constrain NOx emissions in the US?**
10:00-10:15	**Rolf H. Reichle,** Zhang, S.Q., Liu, Q., Draper, C.S., Kolassa, J. and Todling, R.: **A Soil Moisture Analysis Based on SMAP Radiances Improves Near-Surface Atmospheric Humidity and Temperature in the GEOS Weather Analysis and Forecasting System**
10:15-10:30	**Femke C. Vossepoel,** Banerjee, A., Ali Diab-Montero, H. and van Dinther, Y.: **Data assimilation approaches for earthquake simulation**
10:30-10:45	**Anjuli Figueroa: Putting The Pieces Together: Combining Watershed Modelling, Surrogate Modelling and Data Assimilation**
10:45-11:15	**Coffee Break**
	Coupled Data Assimilation I:
11:15-11:30	**In-Hyuk Kwon,** Clayton, A., Kang, J.-H., Lee, S. and Seol, K.-H.: **Recent Developments of the KIAPS Data Assimilation System, and Plans for Earth System and High-Resolution NWP**
11:30-11:45	Leung, T.Y., **Amos S. Lawless** and Nichols, N.K.: **A new smoother method for treating different timescales in coupled data assimilation systems**
11:45-12:00	**Xin Li,** Düsterhöft-Wriggers, W., Nerger, L., Sathyanarayanan, A., van der Lee, E., Marki, A., Lorkowski I. and Brüning, T.: **A comparison of data assimilation experiments in different coupled physics-biogeochemical models for the North and Baltic Sea**
12:00-13:00	**Lunch – 4th Floor**
	Coupled Data Assimilation II and Methods V:
13:00-13:15	Sathyanarayanan, A., Li, X., van der Lee, E., Marki, A., Lorkowski. I. and **Lars Nerger**: **Coupled physics-biogeochemical data assimilation in a nested model of the North and Baltic Seas using PDAF**

13:15-13:30	**Avinash N. Parde,** Ghude, S.D., Sharma, A., Pithani, P., Dhangar, N.G., Govardgan, G., Charlton-Perez, C., Niyogi, D. and Rajeevan, M.: **Impact of high-resolution land surface data assimilation on Fog: A case study from the WiFEX campaign**
13:30-13:45	**Maximilian Ramgraber,** Baptista, R., McLaughlin, D. and Marzouk, Y.: **Nonlinear ensemble transport smoothing**
13:45-14:00	**Andreas Rhodin**, Vasylkevych, S., Andreozzi, P., Wang, C. and Zagar, N.: **Initialization of inertia-gravity waves and unbalanced flows on the sphere**
14:00-14:15	Janjic, T., Lukacova, M., **Yvonne Ruckstuhl,** Wiebe, B.: **A test of an alternative approach for uncertainty representation in the Ensemble Kalman Filter**
14:15-14:30	**Haonan Ren,** Van Leeuwen, P.J. and Amezcua, J.: **Parameter estimation using the (Iterative) Ensemble Kalman Smoother with state augmentation method**
14:30-16:00	**Posters and Coffee Break**
	Methods VI:
16:00-16:15	**Nora Schenk**, Walter, A. and Potthast, R.: **The Localized Mixture Coefficients Particle Filter Method for Regional Data Assimilation at DWD**
16:15-16:30	**Laura C. Slivinski,** Lippi, D.E., Whitaker, J.S., Ge, G., Carley, J.R., Alexander, C. and Compo, G.P.: **Overlapping Windows in a Global Hourly Data Assimilation System**
16:30-16:45	**Jemima M. Tabeart** and Pearson, J.W.: **New preconditioners for the saddle point data assimilation problem**
16:45-17:00	**Peter Jan van Leeuwen** and Hu, C.-C.: **Stochastic Particle Flows for nonlinear data assimilation**

Number	Posters
2.1	**Dillon Sherlock,** Bishop, C. and Carrio, D.: **Assimilation of doubly bounded variables like cloud fraction with the Beta-Binomial (BB) variation on the EnKF**
2.2	**Wonho Kim,** Clayton A. and Kwon. I.-H.: **Initial imbalance in model forecasts, and use of 4D-IAU in hybrid-4DEnVar**
2.3	**Sicheng Wu** and Wang, R.-Q.: **Impact of observational data gaps on EnKF-based data assimilation**
2.4	**Michael R. Goodliff: Developing 4D-Var for coupled atmosphere-ocean data assimilation using a coupled quasi-geostrophic model**
2.5	**Ebony Lee,** Zupanski, M., Lim, S. and Park, S. K.: **Impact of coupled meteorology-chemistry data assimilation on the Asian dust storm simulation**
2.6	**Sujeong Lim.,** Park, S.K., Zupanski, M. and Lee, E.: **Impacts of SMAP Soil Moisture Retrievals within Strongly Coupled Atmosphere-Land Surface Data Assimilation System**
2.7	**Shastri Paturi,** Bozec, A., Chassignet, E., Garraffo, Z., Mehra, A. and Kleist, D.: **Comparison of Data Assimilation Methods in Ocean-Sea Ice Coupled Models at NCEP**
2.8	**Zofia Stanley,** Draper, C., Frolov, S., Huang, W., Slivinski, L., Whitaker, J. and Winterbottom, H.: **Localization for strongly coupled data assimilation: Experiments with LETKF and GETKF**
2.9	**Tseganeh Z. Gichamo,** Draper, C.S., Gholoubi, A., Barlage, M. and Whitaker, J.: **Comparing the Optimal Interpolation (OI) and Ensemble Kalman Filter Snow Data Assimilation in the Noah-MP Land surface Model**

2.10	**Yvonne Ruckstuhl,** Janjic, T., Redl, R., Jung, H. and Knippertz, P.: **Introduction of unphysical features through data assimilation in the tropics**

Wednesday 8th June 2022

Time	Presentation
8:00-8:30	**Keynote 3: Methods - Youssef Marzouk – Transport methods for nonlinear ensemble filtering and smoothing**
	Machine Learning and Data Assimilation I: Chair – TBD
8:30-8:45	**Tse-Chun Chen,** Penny, S.G., Smith, T.A. and Platt, J.A**.: 'Next Generation' Reservoir Computing: An Empirical Data-Driven Expression of Dynamical Equations in Time-Stepping Form**
8:45-9:00	**Marcin Chrust**, Bonavita, M., Farchi, A., Bocquet, M. and Laloyaux, P.: **Hybrid Data Assimilation -Machine Learning for Model Error Estimation and Correction**
9:00-9:15	**Xuguang Wang** and Wang, Y.: **Cost-effective data assimilating using machine learning: a proof of concept**
9:15-9:45	**Coffee Break**
	Machine Learning and Data Assimilation II:
9:45-10:00	**Leohard Scheck,** Baur, F., Gindl, S., Stumpf, C., Köpken-Watts, C. and Potthast, R.: **Neural network-based forward operators for solar satellite channels with aerosol capabilities**
10:00-10:15	**Tim A. Smith** and Penny, S.G.: **Recurrent Neural Network Emulation for High Resolution Sea Surface Forecasts**
10:15-10:30	**Kyle Hilburn: Using Machine Learning to Assimilate GOES Observations in Precipitating Scenes**
10:30-10:45	**Yijun Wang,** Zupanski, M. and Gao, X.: **Application of Maximum Likelihood Ensemble Filter Method with Neural Network to Improve Turbulence Model Parameters**
10:45-11:15	**Coffee Break**
	Methods VII:
11:15-11:30	**Annika Vogel** and Ménard, R.: **Maximizing the added value of multiple observations: Optimal error covariances and cross-covariances for improved data assimilation**
11:30-11:45	**Steven J. Fletcher,** Goodliff, M.R., Hossen, M.J., Kliewer, A.J., Zupanski, M., Wu, T.-C., Jones, A.S., and Forsythe, J.M.: **Non-Gaussian Hybrid Variational Data Assimilation**
11:45-12:00	**Boujemaa Ait-El-Fquih,** Subramanian, A., and Hoteit. I.: **An Ensemble State-Parameters Filtering Approach for Stochastic Climate Modeling**
12:00-13:00	**Lunch 4th Floor**
	Methods VIII and Error Modelling I:
13:00-13:15	**Fan Han,** Collard, A., Dougherty, K., Kleist, D., Liu, E., Liu, S., Martin, C.R. and Treadon, R.: **Quantifying Uncertainty in Atmospheric Analyses Caused by Interpolation Methodology**

13:15-13:30	**Aishah Albarakati**, Budišić, M. and van Vleck, E.S**.: Projected Data Assimilation Using a Sliding Window Proper Orthogonal Decomposition**
13:30-13:45	**Zoltan Toth** and Peña, M.: **One step back, two steps forward: Data assimilation with imperfect models**
13:45-14:00	**Christopher Hurst: Adaptive Maximum Likelihood Ensemble Smoother**
14:00-14:15	**Chih-Chi Hu,** van Leeuwen, P.J. and Geer, A.: **Non-Gaussian observation error estimation for the satellite observations**
14:15-14:30	**Richard Ménard** and Voshtani, S**.: Application of cross-validation to estimate covariance parameters using satellite observation: Its application to atmospheric methane data assimilation**
14:30-16:00	**Posters and Coffee Break**
	Error Modelling II:
16:00-16:15	**James While,** Martin, M. and King, R**.: Biases at the base of the mixed layer induced by 3DVar assimilation of sea surface temperature observations**
16:15-16:30	**Thomas Gastaldo,** Poli, V., Marsigli, C., Cesari, D. and Paolo Alberoni. P.: **Impact of the observation error on the assimilation of radar radial winds in the COSMO-2I model**
16:30-16:45	**Anne Pein** and van Leeuwen, P.J**.: Model error covariance estimation in observation space weak-constraint 4DVar**
16:45-17:00	**Yongming Wang** and Wang, X.: **Simultaneous multiscale EnVar to improve convective scale weather data assimilation and prediction**
	Reception – Coopersmith's Brewery, Old Town Square, Fort Collins, 6-9pm

Number	Posters
3.1	**Sebastien Barthélémy,** Brajard, J., Bertino, L. and Counillon, F.: **High-resolution Ensemble Kalman Filter with a low-resolution model using a machine learning super-resolution approach**
3.2	Abed El Rahman Hammoud, M., Titib, E. S., Hoteit, I. and **Omar Knioa**: **CDAnet: A Physics-Informed Deep Neural Network for Downscaling Fluid Flows**
3.3	**Jakir Hossen,** Goodliff, M.R. and Fletcher, S.J.: **Using Machine Learning Techniques to Switch Between Distributions to Improve Data Assimilation**
3.4	**Lucas Howard** and Subramanian, A.: **Convolutional Neural Networks to emulate EnKF analysis increments in the Lorenz-96 system**
3.5	**Francine Schevenhoven, F.,** Keenlyside, N., Carrassi, A., Counillon, F., Koseki, S., Selten, F., Shen, M.-L., Wang, S. and Duane, G.: **Supermodeling: Improving predictions and projections with an ensemble of interacting models**
3.6	**Arianna Valmassoi** and Keller, J.D.: **Land Surface Temperature Data Assimilation at the Kilometer-Scale for Urban Areas**
3.7	**Yongming Wang** and Wang, X.: **A Multivariant Additive Inflation Approach to Improve Storm-scale Ensemble-Based Data Assimilation and Forecasts of a Tornadic Supercell**
3.8	**Behzad Golparvar,** Wang, R., Brodie, J., Wu, C.-T., Mandayam, N., Vosoughitabar, S. and Majumdar, I.: **Spatio-temporal analysis of the impact of 5G mm Wave technology deployment on the weather forecast accuracy**

3.9	Guannan Hu and Dance, S.L: **Sampling error in the estimation of observation error covariance matrices using observation-minus-background and observation-minus-analysis statistics**
3.10	**Maria Reinhardt: Assimilating visible and infrared observations of clouds**
3.11	**Wei Gu: Enhancements in the Assimilations of CrIS-FSR Observations in GEOS**
3.12	**Francesco Sardelli** and Bishop, C.H**.: Improving the current Hybrid covariance model**
3.13	**Henrique Guarneri,** M. Verlaan, C. Slobbe, F. Zijl, J. Sumihar, K. Ohara, Y. Afrasteh, J. Pietzak, M. Snellen, L. Keijzer, and R. Klees: **Improved sea level bias and tidal estimation in shallow-waters using satellite radar altimetry**

Thursday 9th June 2022

Time	Presentation
8:00-8:30	**Keynote 4: Convection - Takemasa Miyoshi,** Amemiya, T., Honda, T., Otsuka, S., Maejima, Y., Taylor, J., Tomita, H., Nishizawa, S., Sueki, K.Yamaura, T., Ishikawa, Y., Satoh, S., Ushio, T., Koike, K., Hoshi, E.: **Big data assimilation: Real-time 30-s-update forecast experiments using Fugaku in Tokyo in 2021**
	Convection I:
8:30-8:45	**Dale Barker**, Lee, J., Krishnamoorthy, C. and Sharma, K.: **Tropical, Convective-Scale Data Assimilation in Southeast Asia**
8:45-9:00	**Theresa Diefenbach,** Weissmann, M., Scheck, L., Craig, G. and Keil, C.: **Partial Analysis Increments as Diagnostic for LETKF Data Assimilation Systems**
9:00-9:15	**Nicholas Gasperoni,** Wang, X. and Wang, Y.: **An FV3-LAM multiscale EnVar System for the 2021 and 2022 Hazardous Weather Testbed Spring Forecast Experiments: Systematic impact of valid time shifting to increase ensemble size**
9:15-9:45	**Coffee Break**
	Convection II:
9:45-10:00	**Guoqing Ge,** Ladwig, T., Hu, M., Benjamin, S., Weygandt, S., Alexander, C., Pondeca, M. and Carley, J.: **The 3D Real-Time Mesoscale Analysis (3DRTMA) for severe weather, aviation, operational forecasting, and other nowcast applications.**
10:00-10:15	**Junkyung Kay,** Weckwerth, T., Romine, G., Ying, Y.(M.) and Turner, D.: **Impact of assimilating lower-atmospheric wind and thermodynamic profiles on evolution of ABL structures and precipitation forecasts**
10:15-10:30	**Kenta Kurosawa** and Potterjoy, J.**: Mixed PF-EnKF data assimilation for multiscale weather prediction**
10:30-10:45	**Xu Lu** and Wang, X.: **Improving the Four-Dimensional Incremental Analysis Update (4DIAU) with the HWRF 4DEnVar Data Assimilation System for Rapidly Evolving Hurricane Prediction**
10:45-11:15	**Coffee Break**
	Convection III:
11:15-11:30	**Joshua McCurry: Posterior Uncertainty for Cloud Processes Explored Using a Bayesian Filtering Framework**
11:30-11:45	**Robert G. Nystrom,** Snyder, C. and Gharamti, M.: **A One-Step-Ahead Ensemble Kalman Smoothing Approach Toward Estimating the Tropical Cyclone Surface-Exchange Coefficients**

11:45-12:00	**Zhaoxia Pu** and Li, X.: **Enhancing the Prediction of Landfalling Hurricanes with Improved Assimilation of Radar data and Satellite Oceans' Surface Winds**
12:00-13:00	**Lunch – 4th Floor**
	Convection IV and Error Modelling III:
13:00-13:15	**Leohard Scheck,** Geiss, S., Bach, L., de Lozar, A. and Weissmann, M.: **Improving cloud and radiation forecasts by assimilating visible satellite images**
13:15-13:30	**Philipp Griewank, P**., Nomokonova, T., Necker, T., Löhnert, U. and Weissmann, M.: **Accounting for localization in ensemble network design experiments**
13:30-13:45	**Siva Sanikommu,** Raboudi, N., Zhan, P., Hadri, B. and Hoteit, I.: **Insights from Large Ensembles Experiments with the Red Sea Ensemble Data Assimilation system**
13:45-14:00	**Kristen Bathmann** and Zupanski, D.: **Enhancing the Assimilation of a Dense Network of Radio Occultation Bending Angle Observations with Correlated Error**
14:00-14:15	**Erin Jones** and Wang, X.: **Multi-Resolution and Multiscale Ensemble Hybrid 4DEnVar to Improve FV3 based GFS Medium-Range Global and Tropical Cyclone Numerical Prediction**
14:15-14:30	**Jonathan Poterjoy: Online non-parametric quantification of observation uncertainty explored using a particle filter**
14:30-16:00	**Posters and Coffee Break**
	Error Modelling IV and Satellite DA I:
16:00-16:15	**Ricardo Todling: The application of cornered hat methods in at least two different scenarios**
16:15-16:30	**Tobias Necker,** Weissmann, M. and Miyoshi, T.: **Guidance on optimal vertical covariance localization based on a convection-permitting 1000-member ensemble**
16:30-16:45	**Lukas Kugler,** Pierotti, N., Serafin, S. and Weissmann, M.: **Assimilating cloud-affected visible & infrared satellite observations in idealized simulations**
16:45-17:00	**Sihye Lee,** Kwon. I.-H., Kang. J.-H., Clayton. A. and Song, H.-J.: **Effect of background error covariance on assimilating Aeolus/ALADIN wind observations for the Korean Integrated Model (KIM) forecast system**

Number	Posters
4.1	**Jacob R. Carley** and Alexander, C.R.: **Data Assimilation for the Rapid Refresh Forecast System (RRFS)**
4.2	**Carlos Geijo: Variational constraints for convective DA and an interesting correspondence between covariances and Greens Functions**
4.3	**Xu Lu** and Wang, X.: **Simultaneous Multiscale 4DEnVar with scale dependent localization (SDL) in HAFS for hurricane predictions**
4.4	Nomokonova, T., **Philipp Griewank**, Löhnert. U., Miyoshi, T., Necker, T. and Weissmann, M.: **Observing and data assimilation strategies to improve short-term low-level wind forecast for sustainable energy applications**
4.5	**James Taylor,** Honda, T., Amemiya, A., Otsuka, S., Maejima, Y. and Miyoshi, T.: **Sensitivity Testing with Localization Scale for a Convective-Scale Ensemble Radar Data Assimilation System with 30-Sec Update**
4.6	**Withdrawn**

4.7	**Kevin Dougherty,** Collard, A., Esposito, N., Han. F., Hill. C.M., Kleist, D., Kumar, P., Liu, E., Martin, C.R., and Merkova, D.: **Assessing Quality Control Procedures for Aircraft Data in NCEP's Global Data Assimilation System**
4.8	**Donald E. Lippi,** Carley, J.R. and Kleist, D.T.: **Doppler radial wind assimilation in the GFS with an observing system simulation experiment and real data experiments**
4.9	**Anna Shlyaeva** and Tremolet, Y.: **Coupled Data Assimilation Development with JEDI**
4.10	**Nancy L. Baker,** Pauley, P.M., Stone, R.E. and Langland, R.H.: **Interpretation of Forecast Sensitivity Observation Impact in Data Denial Experiments**
4.11	**Laurence Coursol,** Gauthier P., Libois, Q. and Blanchet J.-P.: **Optimal trade off between spectral and radiometric resolution in order to optimize the performances of a radiometer in the far infrared region**
4.12	**Kaushambi Jyoti,** Dutta, S., Pattnayak, S., Prasad, V.S., Halder, S., and Mitra, A.K.: **Impact Assessment of All-sky satellite microwave radiances on Prediction of Very Severe Cyclonic Storm Yaas using GSI Hybrid-4DEnVar Assimilation System**
4.13	**Jeon-Ho Kang** and Kwon, I.-H.: **Enhancing GPS-RO data usage in the troposphere in the KIAPS data assimilation system**
4.14	**Zhiquan (Jake) Liu,** Guerrette, J.J., Ban, J., Jung, B.J. and Snyder, C.: **Relative Merits of all-sky AMSU-A and ABI/AHI radiance data assimilation with The Global JEDI-MPAS System**
4.15	**Ting-Chi Wu,** Terasaki, K., Kotsuki, S. and Miyoshi, T.: **Direct assimilation of GPM DPR reflectivity into a global data assimilation system**
4.16	**Zhu Yao**, Steward, J., Haddad, Z.S., Clothiaux, E.E., Zhang, Y. and Chen, X.: **A statistically-based forward model mapping columns of atmospheric variables to satellite microwave radiance**

Friday 10th June 2022

Time	Presentation
8:00-8:30	**Keynote 5: Angela Benedetti – Advances in chemical data assimilation and future outlook**
	Jedi I:
8:30-8:45	**Sergey Frolov,** Shlyaeva, A., Huang, W., Sluka, T. and Whitaker, J.: **Local volume solvers for Earth system data assimilation in JEDI**
8:45-9:00	**Bo Huang,** Pagowski, M., Trahan, S., Kondragunta, S., Martin, C., Tangborn, A. and Kleist, D.: **JEDI-Based Ensemble-Variational Data Assimilation System for Global Aerosol Forecasting at NCEP: System Development and Near-Real-Time Experiments**
9:00-9:15	**Daryl Kleist,** Treadon, R., Thomas, C., Vernieres, G., Collard, A., Liu, E., Martin, C., Barlage, M., Draper, C., Whitaker, J. and Frolov, S.: **NCEP Operational Global Data Assimilation: Improved use of observations and plans for coupled assimilation**
9:15-9:45	**Coffee Break**
	Satellite DA II:
9:45-10:00	**Benjamin Johnson: Community Radiative Transfer Model (CRTM)**
10:00-10:15	**Emily Huichun Liu,** Sieron, S., Liu, H., Collard, A. and Kleist, D.: **A Revised All-sky Radiance Assimilation Framework in the NCEP Global Model**
10:15-10:30	**Arthur Mizzi**, Johnson, M., McDonald, B., Naeger, A., Hsu, C.-H., Henze, D., Kumar, R. and Anderson, J.: **Joint Assimilation of Multiple Satellite Retrievals and Dynamic Emissions Adjustment with WRF-Chem/DART**
10:30-10:45	**Xiaoyan Zhang**, Carley, J.R., Rogers, E., Lei, T, Liu, S. and Lin, H. **Satellite radiance data assimilation overview in NOAA's prototype Rapid Refresh Forecast System**
10:45-11:15	**Coffee Break**
	Jedi II:
11:15-11:30	**Oluwafemi Kolade** and van Leeuwen, P.J.: **Implementing a Particle Flow Smoother into the JEDI Platform**
11:30-11:45	**Cory R Martin,** Collard, A., Dougherty, K., Han, F., Kleist, D., Liu, E., Mahajan. R., McLaren, R., Thomas, C. and Treadon, R.: **Incorporating JEDI in NCEP's Global Data Assimilation System: Prototype and Initial Results**
11:45-12:00	**Elizabeth A. Satterfield,** King, S.A., Baker, N.L., Ruston, B.C., Xu, L., Reinecke, A., Doyle, J., Tsu, J.S., Michalakes, J., Chua, B. and Zaron, E.: **An Update on the Navy's JEDI-enabled NEPTUNE Data Assimilation System**
12:00-13:00	**Lunch – 4th Floor**
	Satellite DA III:
13:00-13:15	**Liselotte Bach,** Deppisch, T., Scheck, L., Schomburg, A., Baur, F., Schraff, C. and Köpken-Watts, C.: **Data assimilation of visible and water vapour imager channels for very-short-range forecasting**
13:15-13:30	**Florian Baur,** Scheck, L., Stumpf, C., Köpken-Watts, C., Bach, L. and Potthast, R.: **Towards the assimilation of near-infrared channels in numerical weather prediction**
13:30-13:45	**Man-Yau Chan,** Chen, X. and Anderson, J.: **On the Importance of Parallel EnKF Implementations for All-sky Infrared Data Assimilation for Tropical Convection**

13:45-14:00	**Paola Corrales**, Schwartz, C., Ruiz, J. and Galligani, V.: **Assimilation of polar and geostationary satellite observations during RELAMPAGO using a WRF-GSI-LETKF system**
14:00-14:15	**Aaron Johnson,** Chandramouli, K. and Wang, X.: **Online non-linear bias correction of ABI all-sky radiances in rapidly cycled convective-scale ensemble-based data assimilation**
14:15-14:30	**Concluding Remarks, Thank Yous, and Farewells.**