

# 2017 7<sup>th</sup> Annual ESGF F2F Conference Agenda

## 2017 Earth System Grid Federation (ESGF) Face-to-Face Conference (San Francisco, California, USA)

### Registration:

#### Conference venue:

San Francisco Sheraton at Fisherman's Wharf, 2500 Mason Street, San Francisco, CA 94133, USA

**Remote participation:** Indicate on registration form that you wish to participate remotely and an email will be sent with information you need to join Webinar.

**Date:** Dec 4, 2017 to Dec 8, 2017—8:00 a.m. - 6:00 p.m. EST

#### Webinar Logistics:

- 2017 ESGF F2F - Sheraton Fisherman's Wharf, San Francisco, California
- Tuesday, Wednesday, Thursday, Friday  
(December 5, 2017 through December 8, 2017)
- 7:30 a.m. | Eastern Standard Time (San Francisco, GMT-08:00) | 11 hours
- US TOLL: +1-415-655-0001
- Global call-in numbers:  
<https://llnl.webex.com/llnl/globalcallin.php?serviceType=MC&ED=616508797&ollFree=0>
- Meeting number (access code): 807 447 408
- Meeting password: esgf

Note. After logging on, please send your full name and affiliation to Angela ([jefferson9@llnl.gov](mailto:jefferson9@llnl.gov)) for remote conference registration.

Time	Topic
Monday, December 4, 2017	
2:00 p.m. – 4:00 p.m.	Pre-conference registration: Sheraton; Presidio Ballroom
5:00 p.m. – 6:00 p.m.	Social Activity: Meet and Greet (NO HOST) Sheraton-Fisherman's Wharf – Restaurant/Bar
Tuesday, December 5, 2017	
7:30 a.m. – 8:30 a.m.	Registration: Sheraton; Presidio Foyer
8:00 a.m. – 8:30 a.m.	Coffee/tea reception and meet & greet: Sheraton, Presidio Foyer

Time	Topic												
8:30 a.m. – 8:35 a.m.	DOE opening comments— (Justin Hnilo, U.S. DOE's Office of Biological and Environmental Research [BER] Program Manager for Data Management) – <b>Jay will not be at SF event</b> <ul style="list-style-type: none"> <li>Includes welcome, safety, introduction, conference charge, and agenda overview</li> </ul>												
8:35 a.m. – 9:00 a.m.	State of the Earth System Grid Federation (ESGF) (Luca Cinquini—NASA/JPL) <ul style="list-style-type: none"> <li>How conference attendees contribute to the conference's final report (hand out last year's 2016 6<sup>th</sup> Annual ESGF F2F Conference Report)</li> <li>Framing of the 2017 7<sup>th</sup> Annual ESGF F2F Conference</li> </ul>												
<b>Science Drivers: Project Requirements and Feedback</b> (A note from our sponsors)													
9:00 a.m. – 12:00 noon (3 hours)	<b>Science Drivers</b> <i>Session Discussion Lead — Balaji</i> <table border="1"> <tr> <td>9:00 a.m. – 9:30 a.m.</td><td>Karl Taylor and V. Balaji—Coupled Model Intercomparison Project, phase 6 (CMIP6) and the Working Group on Coupled Modeling Infrastructure Panel (WIP)</td></tr> <tr> <td>9:35 a.m. – 10:05 a.m.</td><td>Peter Gleckler, Duane Waliser, Denis Nadeau, Robert Ferraro, Karl Taylor, Luca Cinquini, Paul Durack—An Update on Observations for Model Intercomparison Project (obs4MIPs) from an ESGF perspective: progress plans and challenges</td></tr> <tr> <td>10:10 a.m. – 10:40 a.m.</td><td>Sébastien Denvil, Michael Lauatenschlager, Sandro Fiore, Francesca Guglielmo, Martin Jukes, Stephan Kindermann, Michael Kolax Wim Som de Cerff—Copernicus and H2020 Programme</td></tr> <tr> <td>10:40 a.m. – 10:55 a.m.</td><td><b>Break</b></td></tr> <tr> <td>10:55 a.m. – 11:25 a.m.</td><td>Jerry Potter, Laura Carriere, Judy Hertz—Collaborative REAnalysis Technical Environment Intercomparison Project (CREATE-IP)</td></tr> <tr> <td>11:30 a.m. – 12:00 noon</td><td>Dean N. Williams, Dave Bader, Renata McCoy—Energy Exascale Earth System Model (E3SM) Workflow</td></tr> </table> <p><b>Questions for presenters to answer during their presentations</b></p> <ul style="list-style-type: none"> <li>What are the key things that are difficult to do today and are impeding scientific progress or productivity and the sharing of data?</li> <li>What are key development effort that you see are needed for the future success of your projects?</li> <li>What is your timeline for data production and distribution from climate model and observations, high-performance computer, network, and storage facilities needs and investments?</li> <li>What is the estimated size of your distributed archive?</li> <li>What are your common developments, sharing of expertise, and accelerated developments?</li> <li>What are the administrative/sponsor requirements that arise from your project (basically, metrics collection and reporting, persistent and digital object identifiers, deriving data, user publication [i.e., long-tail publication], etc.)?</li> <li>What are your expected strategic roadmaps for the ESGF's short-term (1 to 3 years), mid-term (3 to 5 years), and long-term (5 to 10 years) development efforts?</li> <li>What are known use cases and workflows to help describe your ESGF future needs?</li> </ul> <p><b>Homework assignment</b></p> <ul style="list-style-type: none"> <li>Before the conference adjourns, convert all known science drivers to use cases for ESGF development.</li> </ul>	9:00 a.m. – 9:30 a.m.	Karl Taylor and V. Balaji—Coupled Model Intercomparison Project, phase 6 (CMIP6) and the Working Group on Coupled Modeling Infrastructure Panel (WIP)	9:35 a.m. – 10:05 a.m.	Peter Gleckler, Duane Waliser, Denis Nadeau, Robert Ferraro, Karl Taylor, Luca Cinquini, Paul Durack—An Update on Observations for Model Intercomparison Project (obs4MIPs) from an ESGF perspective: progress plans and challenges	10:10 a.m. – 10:40 a.m.	Sébastien Denvil, Michael Lauatenschlager, Sandro Fiore, Francesca Guglielmo, Martin Jukes, Stephan Kindermann, Michael Kolax Wim Som de Cerff—Copernicus and H2020 Programme	10:40 a.m. – 10:55 a.m.	<b>Break</b>	10:55 a.m. – 11:25 a.m.	Jerry Potter, Laura Carriere, Judy Hertz—Collaborative REAnalysis Technical Environment Intercomparison Project (CREATE-IP)	11:30 a.m. – 12:00 noon	Dean N. Williams, Dave Bader, Renata McCoy—Energy Exascale Earth System Model (E3SM) Workflow
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12:00 noon – 1:30 p.m.	<b>Lunch</b>												
1:30 p.m. – 3:30 p.m. (2 hours)	<b>Science Driver Town Hall Discussion</b> <i>Session Discussion Lead — Ben Evans</i>												

Time	Topic																																			
	Town Hall Panel: (Karl Taylor, V. Balaji, Peter Gleckler, Robert Ferraro, Sébastien Denvil, Michael Lautenschlager, Jerry Potter, Renata McCoy) <b>Questions to prepare for science driver presentation and discussion</b> <ul style="list-style-type: none"><li>• What is working, and what is not working?</li><li>• What are the key challenges to your programs concerning big data challenges?</li><li>• What data services would address the identified challenges?</li><li>• What exists already today?</li><li>• What do we still need from ESGF?</li><li>• What are the key characteristics that these services need to have to be successful (i.e. integrated, easy to customize, etc.)?</li><li>• What are the key impediments (on the data provider/service provider side) in delivering these services?</li><li>• Which services should be developed with the highest priority, and what would be their measurable impact on science/programs?</li></ul>																																			
3:30 p.m. – 3:45 p.m.	<b>Break</b>																																			
3:45 p.m. – 5:30 p.m. (1 hour & 45 min)	<b>Poster and Live Demonstration Session</b> <i>Session Discussion Lead — Ben Evans</i> <table><tr><th>No.</th><th>Title</th><th>Name</th><th>Poster</th><th>Demo</th></tr><tr><td>1</td><td><b>The Earth Data Analytics Services (EDAS) Framework</b></td><td>Thomas Maxwell Dan Duffy</td><td>Yes</td><td>Yes</td></tr><tr><td>2</td><td><b>PAVICS: A platform for the Analysis and Visualization of Climate Science – toward inter-operable multidisciplinary workflows</b></td><td>D. Huard T. Landry D. Byrns B. Gauvin-St-Denis</td><td>Yes</td><td>Yes</td></tr><tr><td>3</td><td><b>OGC Testbed-13 Earth Observation Clouds</b></td><td>T. Landry D. Byrns</td><td>Yes</td><td>No</td></tr><tr><td>4</td><td><b>Using the ESGF CWT-API in the context of the EUDAT-EGI e-infrastructure and the ENES climate4impact platform</b></td><td>Christian Pagé Xavier Pivan Asela Rajapakse Wim Som de Cerff Maarten Plieger Ernst de Vreede Alessandro Spinuso Lars Barring Antonio Cofino Alessandro d’Anca Sandro Fiore</td><td>Yes</td><td>Yes</td></tr><tr><td>5</td><td><b>Managing growth and complexity - technologies to meet the challenges of operating data, services and infrastructure at scale</b></td><td>Phil Kershaw Jonathan Churchill Alan Iwi Bryan Lawrence Neil Massey Sam Pepler Matt Pritchard Matt Pryor Ag Stephens</td><td>Yes</td><td>No</td></tr><tr><td>6</td><td><b>Ophidia: an interoperable ‘big data’ framework for climate change analytics experiments</b></td><td>Sandro Fiore Charles Doutriaux Cosimo Palazzo Alessandro d’Anca Zeshawn Shaheen Donatello Elia Jason Boutte Valentine</td><td>Yes</td><td>Yes</td></tr></table>	No.	Title	Name	Poster	Demo	1	<b>The Earth Data Analytics Services (EDAS) Framework</b>	Thomas Maxwell Dan Duffy	Yes	Yes	2	<b>PAVICS: A platform for the Analysis and Visualization of Climate Science – toward inter-operable multidisciplinary workflows</b>	D. Huard T. Landry D. Byrns B. Gauvin-St-Denis	Yes	Yes	3	<b>OGC Testbed-13 Earth Observation Clouds</b>	T. Landry D. Byrns	Yes	No	4	<b>Using the ESGF CWT-API in the context of the EUDAT-EGI e-infrastructure and the ENES climate4impact platform</b>	Christian Pagé Xavier Pivan Asela Rajapakse Wim Som de Cerff Maarten Plieger Ernst de Vreede Alessandro Spinuso Lars Barring Antonio Cofino Alessandro d’Anca Sandro Fiore	Yes	Yes	5	<b>Managing growth and complexity - technologies to meet the challenges of operating data, services and infrastructure at scale</b>	Phil Kershaw Jonathan Churchill Alan Iwi Bryan Lawrence Neil Massey Sam Pepler Matt Pritchard Matt Pryor Ag Stephens	Yes	No	6	<b>Ophidia: an interoperable ‘big data’ framework for climate change analytics experiments</b>	Sandro Fiore Charles Doutriaux Cosimo Palazzo Alessandro d’Anca Zeshawn Shaheen Donatello Elia Jason Boutte Valentine	Yes	Yes
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Time	Topic				
			Anantharaj Dean N. Williams Giovanni Aloisio		
	7	<b>Federated data usage statistics in the Earth System Grid Federation</b>	Alessandra Nuzzo Maria Mirto Paola Nassisi Katharina Berger Torsten Rathmann Luca Cinquini Sébastien Denvil Sandro Fiore Dean N. Williams Giovanni Aloisio	Yes	Yes
	8	<b>WPS based processing services for the Copernicus Climate Change Service (C3S)</b>	Stephan Kindermann Carsten Ehbrecht Ag Stephens Björn Brötz Wim Som de Cerff Maarten Plieger Sébastien Denvil	Yes	Yes
	9	<b>Diagnostics Package for the E3SM Model</b>	Chengzhu Zhang Zeshawn Shaheen Chris Golaz Jerry Potter	Yes	Yes
	10	<b>ESGF Errata Service</b>	Guillaume Levavasseur Atef Ben-nasser Mark A. Greenslade	No	Yes
	11	<b>DREAM Data Services for Biological Data and Beyond</b>	Sasha Ames Luca Cinquini Dean N. Williams	Yes	Yes
	12	<b>Community Data Analysis Tools</b>	Charles Doutriaux Denis Nadeau Dan Lipsa Dean N. Williams Aashish Chaudhary	Yes	Yes
	13	<b>Visual Community Data Analysis Tools (vCDAT)</b>	Matthew Harris Dan Lipsa James Crean Matthew Ma Charles Doutriaux Dean N. Williams Aashish Chaudhary	Yes	Yes
	14	<b>Integrating ES-DOC with the ESG Publisher</b>	Alan Iwi David Hassell Mark A. Greenslade Ag Stephens	Yes	Yes
	15	<b>Compute Working Team End-User Application Programming Interface</b>	Jason Boutte Charles Doutriaux	Yes	Yes
	16	<b>A compliance-checking framework for CMIP7</b>	Ag Stephens Antony Wilson Guillaume Levavasseur	No	Yes

Time	Topic				
	17	Google Earth Engine and Project Jupyter	Tyler Erickson	No	Yes
	18	New Approach to Evaluate Large-scale Variability in CMIP models	Ji-Woo Lee, Kenneth R. Sperber, Peter J. Gleckler, Celine W. Bonfils, Karl E. Taylor, Charles Doutriaux	Yes	Yes
	<p><b>Questions to address in your presentation and/or demonstration</b></p> <ul style="list-style-type: none"><li>• What is working and what is not working?</li><li>• What are the key challenges to your application concerning big data challenges within the ESGF infrastructure?</li><li>• How does your application/services integrate into ESGF?</li><li>• What do you still need from ESGF for software integration?</li><li>• What are the key impediments in delivering your application/services in ESGF (i.e. installation, customization, etc.)?</li><li>• What are the key characteristics or functionalities that your application/services offer the community within the ESGF infrastructure?</li><li>• Which services or functions are your application’s highest development priorities, and what would be their measurable impact on science/programs (i.e., what is in store for the future)?</li></ul>				
6:00 p.m. – 7:00 p.m.	Awards Ceremony + Live Entertainment				
7:00 p.m.	Adjourn Day 1				
Wednesday, December 6, 2017					
8:00 a.m. – 8:30 a.m.	Coffee/tea reception and meet & greet: Sheraton; Presidio Foyer				
8:30 a.m. – 9:45 a.m. (1 hour & 15 min)	<b>International Climate Network Working Group, Replication / Versioning and Data Transfer Working Team Plenary Discussion</b> <i>Session Discussion Leads and Presenters — Eli Dart, Lukasz Lacinski, Stephan Kindermann</i>				
	8:30 a.m. – 8:45 a.m.	Eli Dart, Lukasz Lacinski, Stephan Kindermann—Presentation on data transfers and replication progress			
	8:45 a.m. – 9:30 a.m.	Group discussion			
	9:30 a.m. – 9:45 a.m.	Conclusion recap			
	<p><b>Questions for the ICNWG (i.e., network) plenary discussion</b></p> <ul style="list-style-type: none"><li>• ICNWG network software and hardware integration requirements for Tier 1 and Tier 2 sites</li><li>• ICNWG network preparation services and tools (e.g., perfSONAR, Globus)</li><li>• Automated replication network requirements for ESGF (i.e., CMIP6 and other projects)</li><li>• ICNWG network security requirements</li><li>• ICNWG dashboard integration into ESGF dashboard</li><li>• Resource discovery and allocation services</li><li>• Identify key gaps, identify benefitting communities, and prioritize ICNWG future work</li></ul>				

Time	Topic						
9:45 a.m. – 10:30 a.m.	<b>Google Cloud</b> <b>Presentation by Karan Bhatia (Google) and group discussion</b> <table> <tr> <td>9:45 a.m. – 10:15 a.m.</td><td>Karan Bhatia - presentation</td></tr> <tr> <td>10:15 a.m. – 10:30 a.m.</td><td>Group discussion</td></tr> </table>	9:45 a.m. – 10:15 a.m.	Karan Bhatia - presentation	10:15 a.m. – 10:30 a.m.	Group discussion		
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10:15 a.m. – 10:30 a.m.	Group discussion						
10:30 a.m. – 10:45 a.m.	<b>Break</b>						
10:45 a.m. – 12:00 noon (1 hour & 15 minutes)	<b>Compute and Data Analytics Working Team Plenary Discussion</b> <i>Session Discussion Lead and Presenters — Charles Doutriaux and Daniel Duffy</i> <table> <tr> <td>10:45 a.m. – 11:00 a.m.</td><td>Charles Doutriaux and Daniel Duffy—Presentation on server-side computing progress</td></tr> <tr> <td>11:00 a.m. – 11:15 a.m.</td><td>Cameron Christensen, Giorgio Scorzelli, Peer-Timo Bremer, Shusen Liu, Ji-Woo Lee, Brian Summa, Valerio Pascucci - Interactive Analysis and Visualization of Arbitrarily Large, Disparately Located Climate Data Ensembles Using a Progressive Runtime Server, On-Demand Data Conversion, and an Embedded Domain Specific Language Suitable for Incremental Computation</td></tr> <tr> <td>11:15 a.m. – 12:00 noon</td><td>Group Discussion and Conclusion recap</td></tr> </table> <p><b>Questions for server-side computing</b></p> <ul style="list-style-type: none"> <li>• Define a scalable compute resource (clusters and HPCs) for ESGF data analysis</li> <li>• Data analytical and visualization capabilities and services</li> <li>• Performance of model execution</li> <li>• Advanced networks as easy-to-use community resources (i.e., resource management)</li> <li>• Provenance and workflow</li> <li>• Automation of steps for the computational work environment</li> <li>• Resource management, installation and customer support</li> <li>• Identify key gaps, identify benefitting communities, and prioritize next steps</li> <li>• Analysis services when multiple data sets are not co-located (future work)</li> </ul>	10:45 a.m. – 11:00 a.m.	Charles Doutriaux and Daniel Duffy—Presentation on server-side computing progress	11:00 a.m. – 11:15 a.m.	Cameron Christensen, Giorgio Scorzelli, Peer-Timo Bremer, Shusen Liu, Ji-Woo Lee, Brian Summa, Valerio Pascucci - Interactive Analysis and Visualization of Arbitrarily Large, Disparately Located Climate Data Ensembles Using a Progressive Runtime Server, On-Demand Data Conversion, and an Embedded Domain Specific Language Suitable for Incremental Computation	11:15 a.m. – 12:00 noon	Group Discussion and Conclusion recap
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11:15 a.m. – 12:00 noon	Group Discussion and Conclusion recap						
12:00 noon – 1:30 p.m.	<b>Lunch</b>						
1:30 p.m. – 2:40 p.m. (1 hour & 10 minutes)	<b>Identity Entitlement Access Working Team Plenary Discussion</b> <i>Session Discussion Lead — Philip Kershaw and Lukasz Lacinski</i> <table> <tr> <td>1:30 p.m. – 1:45 p.m.</td><td>Philp Kershaw and Lukasz Lacinski—Presentation on authentication and authorization and IdEA progress</td></tr> <tr> <td>1:45 p.m. – 2:30 p.m.</td><td>Group discussion</td></tr> <tr> <td>2:30 p.m. – 2:40 p.m.</td><td>Conclusion recap</td></tr> </table> <p><b>Questions for authentication and authorization</b></p> <ul style="list-style-type: none"> <li>• What tools have been identified for authentication and authorization (i.e., OAuth 2) and how well will they integrate with other projects (i.e., Copernicus, NASA DAACs, etc.)?</li> <li>• What is needed for authentication and authorization integration with the ESGF software stack installation (i.e., address key needs)?</li> <li>• What services must be made available today and in the future for authentication and authorization?</li> <li>• What level of support would be expected from the science community?</li> <li>• How do we want to assess the maturity and capability of authentication and</li> </ul>	1:30 p.m. – 1:45 p.m.	Philp Kershaw and Lukasz Lacinski—Presentation on authentication and authorization and IdEA progress	1:45 p.m. – 2:30 p.m.	Group discussion	2:30 p.m. – 2:40 p.m.	Conclusion recap
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2:30 p.m. – 2:40 p.m.	Conclusion recap						

Time	Topic										
	<p>aurthoization (e.g., benchmarks or crowdsourcing)?</p> <ul style="list-style-type: none"> <li>What are the future efforts to be expected from ESGF-IdEA?</li> </ul>										
2:40 p.m. – 3:55 p.m. (1 hour & 15 minutes)	<p><b>Status Update and Future Planning for ESGF User Interface, Search, and Dashboard Working Teams Plenary Discussion</b></p> <p><i>Session Discussion Lead — Luca Cinquini, Guillaume Levavasseur, and Alessandra Nuzzo</i></p> <table> <tr> <td>2:40 p.m. – 2:55 p.m.</td><td>Luca Cinquini, Guillaume Levavasseur, and Alessandra Nuzzo—Status update and future planning for the ESGF UI, Search, and Dashboard Working Group</td></tr> <tr> <td>2:55 p.m. – 3:30 p.m.</td><td>Group discussion</td></tr> <tr> <td>3:30 p.m. – 3:45 p.m.</td><td><b>Break</b></td></tr> <tr> <td>3:45 p.m. – 3:55 p.m.</td><td>Conclusion recap</td></tr> </table> <p><b>Questions</b></p> <ul style="list-style-type: none"> <li>Do you have any plan for engaging the user community to provide ongoing feedback for the user interface?</li> <li>How do you expect the search services to scale to support new data holdings in the next 5 years?</li> <li>Do you have any plans for federating the search services with other sites/agencies/institutions?</li> <li>How do you validate the metrics obtained from the dashboard, both for a single node, and across the whole federation?</li> </ul>	2:40 p.m. – 2:55 p.m.	Luca Cinquini, Guillaume Levavasseur, and Alessandra Nuzzo—Status update and future planning for the ESGF UI, Search, and Dashboard Working Group	2:55 p.m. – 3:30 p.m.	Group discussion	3:30 p.m. – 3:45 p.m.	<b>Break</b>	3:45 p.m. – 3:55 p.m.	Conclusion recap		
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3:45 p.m. – 3:55 p.m.	Conclusion recap										
3:55 p.m. – 5:30 p.m. (1 hour & 15 minutes)	<p><b>Installation and Software Security Working Team Plenary Discussion</b></p> <p><i>Session Discussion Leads — William Hill, Prashanth Dwarakanath, Luca Cinquini, and George Rumney</i></p> <table> <tr> <td>3:55 p.m. – 4:05 p.m.</td><td>William Hill and Prashanth Dwarakanath—Presentation on Software Installation</td></tr> <tr> <td>4:05 p.m. – 4:15 p.m.</td><td>Luca Cinquini—Presentation on Software Container (i.e., Docker)</td></tr> <tr> <td>4:15 p.m. – 4:25 p.m.</td><td>George Rumney—Presentation of Software Security</td></tr> <tr> <td>4:25 p.m. – 5:20 p.m.</td><td>Group discussion</td></tr> <tr> <td>5:20 p.m. – 5:30 p.m.</td><td>Conclusion recap</td></tr> </table> <p><b>Questions</b></p> <ul style="list-style-type: none"> <li>How close are you to have an operation version of the Docker/Cloud ESGF?</li> <li>Which services or functionality are still missing from this architecture?</li> <li>How do you plan to address security risks with this architecture?</li> <li>Is there a plan for migrating an operational system from the current shell-based installer to Docker/Cloud?</li> </ul>	3:55 p.m. – 4:05 p.m.	William Hill and Prashanth Dwarakanath—Presentation on Software Installation	4:05 p.m. – 4:15 p.m.	Luca Cinquini—Presentation on Software Container (i.e., Docker)	4:15 p.m. – 4:25 p.m.	George Rumney—Presentation of Software Security	4:25 p.m. – 5:20 p.m.	Group discussion	5:20 p.m. – 5:30 p.m.	Conclusion recap
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5:20 p.m. – 5:30 p.m.	Conclusion recap										
5:30 p.m.	<b>Adjourn Day 2</b>										

Time	Topic								
Thursday, December 7, 2017									
8:00 a.m. – 8:30 a.m.	Coffee/tea reception and meet & greet: Sheraton; Presidio Foyer								
8:30 a.m. – 9:45 a.m. (1 hour & 15 minutes)	<p><b>Publication, Quality Control, Metadata, and Provenance Capture Working Team Plenary Discussion</b>  <i>Session Discussion Leads — Sasha Ames and Heinz-Dieter Hollweg</i></p> <table border="1"> <tr> <td>8:30 a.m. – 8:40 a.m.</td><td>Sasha Ames—Presentation on Publication Progress</td></tr> <tr> <td>8:40 a.m. – 8:50 a.m.</td><td>Heinz-Dieter Hollweg—Presentation on Quality Control Progress</td></tr> <tr> <td>8:50 a.m. – 9:00 a.m.</td><td>Bibi Raju - Provenance Data harvest and Scientific Results Reproducibility</td></tr> <tr> <td>9:00 a.m. – 9:45 a.m.</td><td>Group Discussion and Conclusion recap</td></tr> </table> <p><b>Questions for publications, QC, metadata, and provenance capture plenary discussion</b></p> <ul style="list-style-type: none"> <li>• Data integration and advanced metadata capabilities</li> <li>• Data and metadata collection and sharing capabilities for possible provenance</li> <li>• Data Quality and ancillary information</li> <li>• Data preparation services and tools</li> <li>• Authentication and security</li> <li>• Local and remote publication services</li> <li>• What are the key challenges that scientists encounter?</li> <li>• What capabilities would address the identified challenges?</li> <li>• What exists already today?</li> <li>• What do we still need?</li> <li>• What are the impediments for ESGF node providers and software developers to provide these missing capabilities?</li> <li>• Which requirements need to be addressed with the highest priority and what would be their measurable impact on science?</li> </ul>	8:30 a.m. – 8:40 a.m.	Sasha Ames—Presentation on Publication Progress	8:40 a.m. – 8:50 a.m.	Heinz-Dieter Hollweg—Presentation on Quality Control Progress	8:50 a.m. – 9:00 a.m.	Bibi Raju - Provenance Data harvest and Scientific Results Reproducibility	9:00 a.m. – 9:45 a.m.	Group Discussion and Conclusion recap
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9:45 a.m. – 10:45 a.m. (1 hour)	<p><b>Machine Learning Plenary Discussion</b>  <i>Session Discussion Lead — Sookyoung Kim, TBD?</i></p> <table border="1"> <tr> <td>9:45 a.m. – 9:55 a.m.</td><td>Sookyoung Kim—Presentation on Community Machine Learning</td></tr> <tr> <td>9:55 a.m. – 10:05 a.m.</td><td>Sébastien Denvil, Sandro Fiore, Philip Kershaw—Copernicus and H2020 Program Machine Learning Efforts</td></tr> <tr> <td>10:05 a.m. – 10:15 a.m.</td><td>Tom Landry - Imagery, text and geospatial Machine Learning applications in Montreal's booming ML landscape</td></tr> <tr> <td>10:15 a.m. – 10:45 a.m.</td><td>Group Discussion</td></tr> </table> <p><b>Questions for the machine learning plenary discussion</b></p> <ul style="list-style-type: none"> <li>• What problems machine learning and deep learning methodologies can solve in climate domain?</li> <li>• What can it not solve?</li> <li>• What is the recent metrics in deep learning which can applied to climate data?</li> <li>• What exist already in climate community using artificial intelligence?</li> <li>• What is the highest priority problem using machine learning in climate community?</li> </ul>	9:45 a.m. – 9:55 a.m.	Sookyoung Kim—Presentation on Community Machine Learning	9:55 a.m. – 10:05 a.m.	Sébastien Denvil, Sandro Fiore, Philip Kershaw—Copernicus and H2020 Program Machine Learning Efforts	10:05 a.m. – 10:15 a.m.	Tom Landry - Imagery, text and geospatial Machine Learning applications in Montreal's booming ML landscape	10:15 a.m. – 10:45 a.m.	Group Discussion
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Time	Topic										
	<ul style="list-style-type: none"> <li>What are the key challenges to ESGF implementing machine learning algorithms?</li> <li>How can we solve these challenges with respect to programs?</li> <li>How can we solve data labeling and scalability issue?</li> </ul>										
10:45 a.m. – 11:00 a.m.	<b>Break</b>										
11:00 a.m. – 12:00 noon (1 hour)	<p><b>Diagnostics Plenary Discussion</b>  <i>Session Discussion Lead — Zeshawn Shaheen, Tom Landry, others</i></p> <table> <tr> <td>11:00 a.m. – 11:10 a.m.</td><td>Zeshawn Shaheen—Presentation on the Community Diagnostics Package</td></tr> <tr> <td>11:10 a.m. – 11:20 a.m.</td><td>Copernicus—Presentation on Copernicus Diagnostics (<b>TBD</b>)</td></tr> <tr> <td>11:20 a.m. – 11:30 a.m.</td><td>Tom Landry—Presentation on Canada Diagnostics</td></tr> <tr> <td>11:30 a.m. – 11:50 a.m.</td><td>Group discussion</td></tr> <tr> <td>11:50 a.m. – 12:00 noon</td><td>Conclusion recap</td></tr> </table> <p><b>Questions for the diagnostics plenary discussion</b></p> <ul style="list-style-type: none"> <li>What are the key diagnostics challenges that scientists encounter?</li> <li>What diagnostics capabilities would address the identified challenges?</li> <li>What diagnostics exists already today?</li> <li>What diagnostics are still need?</li> <li>What are the diagnostics impediments for resource providers (i.e., hardware) and software developers to provide these missing capabilities?</li> <li>Which diagnostics requirements need to be addressed with the highest priority and what would be their measurable impact on science?</li> </ul>	11:00 a.m. – 11:10 a.m.	Zeshawn Shaheen—Presentation on the Community Diagnostics Package	11:10 a.m. – 11:20 a.m.	Copernicus—Presentation on Copernicus Diagnostics ( <b>TBD</b> )	11:20 a.m. – 11:30 a.m.	Tom Landry—Presentation on Canada Diagnostics	11:30 a.m. – 11:50 a.m.	Group discussion	11:50 a.m. – 12:00 noon	Conclusion recap
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12:00 noon – 1:30 p.m.	<b>Lunch</b>										
1:30 p.m. – 3:00 p.m. (1 hour & 30 minutes)	<p><b>CMIP6 Data Node Operations Team (CDNOT) Plenary Discussion</b>  <i>Session Discussion Lead — Sébastien Denvil</i></p> <table> <tr> <td>1:30 p.m. – 1:50 p.m.</td><td>Sébastien Denvil—What is CDNOT and what is it we want to achieve</td></tr> <tr> <td>1:50 p.m. – 2:50 p.m.</td><td>Group discussion</td></tr> <tr> <td>2:50 p.m. – 3:00 p.m.</td><td>Conclusion recap</td></tr> </table> <p><b>Questions for the CDNOT plenary discussion</b></p> <ul style="list-style-type: none"> <li>What are the ESGF services and tools that are needed for CDNOT to be successful</li> <li>Should CDNOT's mode of operation be made more widely accessible to other projects and the community?</li> <li>What is the distinction between CDNOT and ESGF?</li> </ul>	1:30 p.m. – 1:50 p.m.	Sébastien Denvil—What is CDNOT and what is it we want to achieve	1:50 p.m. – 2:50 p.m.	Group discussion	2:50 p.m. – 3:00 p.m.	Conclusion recap				
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2:50 p.m. – 3:00 p.m.	Conclusion recap										
3:00 p.m. – 4:30 p.m. (1 hour & 30 minutes)	<p><b>Node Manager and Tracking / Feedback Notification Plenary Discussion</b>  <i>Session Discussion Lead — Sasha Ames and Tobias Weigel</i></p> <table> <tr> <td>3:00 p.m. – 3:10 p.m.</td><td>Sasha Ames—Presentation on the Node Manager</td></tr> <tr> <td>3:10 p.m. – 3:20 p.m.</td><td>Tobias Weigel— Presentation on PID Services and Tracking/Feedback</td></tr> <tr> <td>3:20 p.m. – 4:05 p.m.</td><td>Group discussion</td></tr> </table>	3:00 p.m. – 3:10 p.m.	Sasha Ames—Presentation on the Node Manager	3:10 p.m. – 3:20 p.m.	Tobias Weigel— Presentation on PID Services and Tracking/Feedback	3:20 p.m. – 4:05 p.m.	Group discussion				
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4:20 p.m. – 4:30 p.m.	Conclusion recap						
4:30 p.m. – 5:30 p.m. (1 hour)	<p><b>User Support and Documentation Plenary Discussion</b>  <i>Session Discussion Lead — Matthew Harris</i></p> <table> <tr> <td>4:30 p.m. – 4:40 p.m.</td><td>Matthew Harris — Presentation on the User Support for the Community</td></tr> <tr> <td>4:40 p.m. – 5:20 p.m.</td><td>Group discussion</td></tr> <tr> <td>5:20 p.m. – 5:30 p.m.</td><td>Conclusion recap</td></tr> </table> <p><b>Questions</b></p> <ul style="list-style-type: none"> <li>• What level of support and documentation are needed for ESGF services, tools and the community?</li> <li>• What do support and documentation do data provider and users want to see from ESGF?</li> <li>• What type of support and documentation is there for ESGF (i.e., FAQs, Jupyter Notebook, online tutorials, presentations)?</li> <li>• Where are the support tools and documentation located?</li> <li>• What can we expect in the future in terms for user support and documentation?</li> </ul>	4:30 p.m. – 4:40 p.m.	Matthew Harris — Presentation on the User Support for the Community	4:40 p.m. – 5:20 p.m.	Group discussion	5:20 p.m. – 5:30 p.m.	Conclusion recap
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5:20 p.m. – 5:30 p.m.	Conclusion recap						
5:30 p.m.	<b>Adjourn Day 3</b>						
<b>Friday, December 8, 2017</b>							
8:00 a.m. – 8:30 a.m.	Coffee/tea reception and meet & greet: Sheraton; Presidio Foyer						
8:30 a.m. – 10:00 a.m.	<p><b>ESGF Executive Committee Breakout Meeting: Sheraton; Lombard Room</b></p> <ul style="list-style-type: none"> <li>• Discuss of the construction of the annual conference report</li> <li>• Discuss meeting location and time of the next ESGF F2F conference</li> <li>• Discuss strategic and implementation documents</li> </ul> <p><b>Working Teams Meeting</b></p> <ul style="list-style-type: none"> <li>• All working teams discuss conference findings for their area of annual reporting</li> </ul>						
10:00 a.m. – 10:15 a.m.	<b>Break</b>						
10:15 a.m. – 12:00 noon	<p><b>ESGF Development Teams Report Back on Conference Findings: Sheraton; Presidio Ballroom</b></p> <p><i>Session Discussion Lead — Tom Landry</i></p>						

Time	Topic
	<ul style="list-style-type: none"> <li>• ESGF Team Leads findings on conference feedback</li> <li>• Prioritize the feedback</li> <li>• Open discussion</li> </ul>
12:00 noon	<b>Adjourn Day 4</b>
12:00 noon – 1:30 p.m.	<b>Lunch</b>
1:30 p.m. – 5:30 p.m.	<b>General Code Sprint (optional): Sheraton; Lombard Room</b> <ul style="list-style-type: none"> <li>• Working Teams and Leads</li> </ul>
5:30 p.m.	<b>Conference Adjourn Day 4</b>
<b>Concludes the 7<sup>th</sup> Annual ESGF F2F Conference</b>	