



Extreme Data Workshop 2018

Forschungszentrum Jülich, 18 – 19 September 2018

Proceedings

Martin Schultz, Dirk Pleiter, Peter Bauer (Editors)

IAS Series

Band / Volume 40

ISBN 978-3-95806-392-1

Forschungszentrum Jülich GmbH
Institute for Advanced Simulation (IAS)
Jülich Supercomputing Centre (JSC)

Extreme Data Workshop 2018

Forschungszentrum Jülich, 18 – 19 September 2018
Proceedings

Martin Schultz, Dirk Pleiter, Peter Bauer (Editors)

Table of Contents

Extreme data: Demands, technologies, and services – A community workshop <i>by M. G. Schultz, D. Pleiter, and P. Bauer</i>	3
Current approaches and future challenges for analysing atmospheric circulation from climate model big data <i>by D. Handorf, K. Dethloff, A. Rinke, and R. Jaiser</i>	9
The challenge of the data demands of the high luminosity LHC experiments for the GridKa WLCG Tier-1 center at KIT <i>by A. Petzold, and J. E. Sundermann</i>	13
Is it here/there yet? Real life experiences of generating/evaluating extreme data sets around the world <i>by G. Juckeland, A. Huebl, and M. Bussmann</i>	17
Hybrid cloud and HPC services for extreme data workflows <i>by S. R. Alam, M. Martinasso, and T. C. Schulthess</i>	19
Towards exascale climate data handling: infrastructure, data management, data services <i>by S. Kindermann, M. Stockhause, H. Thiemann, T. Weigel, and S. Bendouka</i>	23
Extreme data and computing in numerical weather prediction <i>by T. Quintino, S. Smart, P. Lean, and P. Bauer</i>	27
Beating data bottlenecks in weather and climate science <i>by B. N. Lawrence, J. M. Kunkel, J. Churchill, N. Massey, P. Kershaw, and M. Pritchard</i>	31
Future I/O architectures and infrastructures for extreme-scale data analytics <i>by D. Pleiter</i>	37
Using the AiiDA-FLEUR package for all-electron ab initio electronic structure data generation and processing in materials science <i>by J. Broeder, D. Wortmann, and S. Blügel</i>	43
Flexible tool development for climate data applications: A compression framework <i>by U. Cayoglu, J. Meyer, T. Kerzenmacher, P. Braesicke, and A. Streit</i>	49
Towards big data-enabled terrestrial systems modeling at HPSC TerrSys <i>by K. Goergen, S. Brdar, C. Furushu-Percot, K. B. Kulkarni, B. Naz, J. Vanderborght, H.-J. Hendricks-Franssen, and S. Kollet</i>	53
The Helmholtz Analytics Toolkit (HeAT) - A scientific big data library for HPC <i>by K. Krajsek, C. Comito, M. Götz, B. Hagemeyer, P. Knechtges, and M. Siggel</i>	57
Personalized medicine: the need for exascale data handling <i>by M. Becker, H. Schultze, and J. L. Schultze</i>	61

IAS Series
Band / Volume 40
ISBN 978-3-95806-392-1