Definition	Description
2D-surface Wavefields	A collection of "synthetic seismogramms" on everysurface point of the simulated geographical region
3C	Three component data recorded by seismometers.
ADMIRE	Architectures for Data Intensive Research - http://www.admire-project.eu/
AGU	American Geophysical Union http://sites.agu.org/
API	Application Program Interface, an inter-software communication specification used for accessing functionality or services from programs.
ArcLink	A protocol for data transfer from geographically distribute data archives based on time windows - http://www.seiscomp3.org/wiki/doc/applications/arclink
ATLAS	Automatically Tuned Library Algebra Software
AXISEM	A parallel spectral-element method - http://www.seg.ethz.ch/software/axisem
BADW-LRZ	The Bavarian Academy of Sciences and Humanities - Leibniz Supercomputing Centre - http://www.lrz.de/english/
BDII	Berkeley Database Information Index
BLAS	Basic Linear Algebra Subprograms
CINECA	Consorzio Interuniversitario Cineca
cloud	See cloud computing.
cloud computing	A (business) model for enabling the delivery as a service of shared computing resources such as CPUs, networks, storage and applications to multiple users.
component	One of the computational elements involved in a data-intensive or computational process, such as: application codes, scripts, workflows, services, catalogues, registries, data collections, data resources, functions, gateways, libraries, PEs, PE instances, format definitions and types.
cpu-intensive applications	Compute-intensive applications are those that devote most of their execution time to computational requirements and typically require small volumes of data although they can produce very large to huge data volumes. Compute-intensive is a term that applies to any computer application that demands a lot of computation, such as forward modeling programs for seismic wave propagation or other scientific applications.
cross-correlation	In signal processing, cross-correlation is a measure of similarity of two waveforms as a function of a time-lag applied to one of them.
CREAM	Computing Resource Execution And Management
DAGMan	Directed Acyclic Graph Manager, Pegasus engine for executing workflows on available compute resources.
data	Any digitally encoded information that can be stored, processed and transmitted by computers. Includes text files, database records, images, video sequences and recordings. In seismology, it is customary to refer to data as those digital values acquired by the pair seismometer/data-logger deployed in the field which is recording the ground motion object of the analysis.
data archive	The long-term storage of scientific data and methods.
data integration	The process of combining data residing at different sources and providing the user with a unified view of these data. This process emerges in a variety of situations both commercial (when two similar companies need to merge their databases) and scientific (combining research results from different repositories) domains.
data mining	The process of automatically extracting patterns from data using techniques such as classification, association rule mining and clustering.

data-analysis expert	An expert in building or using knowledge discovery methods in a data-rich environment. In the context of VERCE, for example, they build libraries, such as ObsPy or workflows, such as cross-correlation or visualisers, such as SDX.
data-intensive	An adjectival phrase that denotes that the item to which it is applied requires attention to the properties of data and to the ways in which data are handled.
data-intensive applications	Data-intensive applications are those that are used to process large volumes of data typically of the order of terabytes or petabytes in size and referred to as Big Data. They require large volumes of data and devote most of their processing time to I/O and manipulation of data.
data-intensive computing	Computing that necessitates attention to any relevant property of data, including their volumes, distributed locations, and the heterogeneity of their formats and storage structures.
data-intensive engineer	An expert in designing, providing, tuning, operating and improving the use of computational platforms for data-intensive tasks.
data staging	Indicates the process of moving (stage-in) the data to the site of execution. In some cases, a data stage-out is specified to download the results and data clean-up after execution. In a use case, there may be several such data staging activities, which could occur sequentially or in parallel.
DCI	Distributed Computing Infrastructure
DECI	Distributed European Computing Initiative / DEISA Extreme Computing Initiative
DEISA	Distributed European Infrastructure for Supercomputing Applications
DIRAC	The DIRAC (Distributed Infrastructure with Remote Agent Control) project is a complete Grid solution for a community of users needing access to distributed computing resources. - http://diracgrid.org/
distributed computing	The collective use of distributed resources, including data and applications, to solve a computational problem.
domain expert	A person who is skilled in a particular field of research or decision making. In the context of VERCE, seismologists and later other Earth scientists.
DoW	Description of Work
e-Infrastructure	The ICT element of a research infrastructure, i.e.~a distributed collection of data, storage and compute resources, interconnected by digital communications and organised to serve a common research purpose. It includes the hardware, software, middleware, staff, operational procedures and policies needed to make it operate for that purpose, and requires maintenance to function in the evolving digital environment and to meet the changing needs of its user communities.
Earth Model	Assumed one to three dimensional parameter sets of the earth's interior on which a simulation is based.
EDGI	European Grid Initiative (http://edgi-project.eu)
EDIM1	Edinburgh Data-Intensive Machine 1, University of Edinburgh experimental architecture for data-intensive computing.
Dispel	Data-Intensive Systems Process Engineering Language, a workflow composition language for data-intensive applications.
Dispel Gateway	The new name of "ADMIRE gateway"
EGI	European Grid Infrastructure - http://www.egi.eu
EGI ESR VO	Earth Science Research (ESR) Virtual Organisation (VO) in EGI - http://www.euearthsciencegrid.org/content/esr-vo-introduction
EGU	European Geophysical Union, www.egu.eu
EIDA	European Integrated Data Archives infrastructure - http://www.verce.eu//ITCoordinationMeetingFebruary2012/EIDA-Overview.pdf
EMI	European Middleware Initiative - http://www.eu-emi.eu/
EMSC	Euro-Mediterranean Seismological Centre
enactment	The execution of a workflow on a computational platform; this generally involves coordinated use of multiple and often heterogeneous communication, data and compute resources.
ENVRI	Common Operations of Environmental Research Infrastructures http://www.egi.eu/about/EGI.eu/EGI.eu_projects/ENVRI.html
EPOS	``European Plate Observing System" is an ESFRI approved infrastructure currently in its preparatory phase and funded by the EC (http://www.epos-eu.org).
EQ	EarthQuake
ESFRI	European Strategy Forum on Research Infrastructures.
ESSL	IBM's Engineering and Scientific Subroutine Library

EUDAT	EUropean DATa is a project currently funded by the EC for the development of the Common Data Interface (http://www.eudat.eu).
EUGridPMA	European Union Grid Policy Management Authority. International organisation to coordinate the trust fabric for e-Science authentication in Europe,- http://www.eugridpma.org
Event	data Catalog entry, from an event-catalog (usually < 10lines ascii orQuakeML), including location, magnitude and/or moment values and type of an earthquake.
F2F meeting	Face-to-face meeting
FD	Finite-Difference wave propagation
Forward Simulation	Simulation of seismic wave-propagation, results in synthetic seismograms.
FP7	Seventh Programme Framework
FTS	gLite File Transfer Service - see gLite below
Full-Waveform Inversion	Tomographic inversion of the real seismograms (or differences between real and synthetic seismograms) to determine the underlying earth model.
gateway	A software subsystem, typically at the middleware level, that accepts requests for computational and data-handling tasks. It vets those requests to establish whether they are valid, e.g.~are syntactically and semantically consistent, and are authorised. Requests that are not validated are rejected. Requests that are accepted are passed to other software systems, at the same or other locations, for execution. The gateway may partition and translate requests in order to combine heterogeneous services.
gLite	Lightweight Middleware for Grid Computing - http://glite.cern.ch
Globus	Globus - An open source Grid software that addresses the most challenging problems in distributed resource sharing (as per www.globus.org)
Globus Online	A cloud-based, reliable, high performance and secure service for managing file transfers https://www.globusonline.org/
Globus Toolkit	Open source software toolkit used for building grids - http://www.globus.org/toolkit/
GPGPU	General-purpose computing on graphics processing units
GPU	Graphics Processing Unit
GRAM	Job submission middleware tool from Globus
GRelC	Grid Relational Catalog Project - http://grelc.unile.it/home.php
grid	A system that is concerned with the integration, virtualisation, and management of services and resources in a distributed, heterogeneous environment that supports collections of users and resources (virtual organisations) across traditional administrative and organisational domains (real organisations).
GridFTP	Grid File Transfer Protocol, an extension of the standard FTP for use with grid computing.
GridSpace2	Provides a Web 2.0-based Experiment Workbench for joint development and execution of virtual experiments by groups of collaborating scientists. - https://gs2.plgrid.pl/
GSI	Grid Security Infrastructure. Also see Globus.
GSISSH	GSI-OpenSSH is a modified version of OpenSSH that adds support for GSI authentication and credential forwarding (delegation), providing a single sign-on remote login and file transfer service.
GSI-SSHTerm	A Java based terminal client for accessing the Grid - http://www.grid.lrz.de/en/mware/globus/client/gsissh_term.html
GT	Globus Toolkit
GUI	Graphical User Interface
HDF5	Hierarchical Data Format (HDF, HDF4, or HDF5) is the name of a set of file formats and libraries designed to store and organize large amounts of numerical data (http://www.hdfgroup.org/HDF5/)
high-performance computing (HPC)	Use of powerful processors, high-speed networks and parallel supercomputers for running computationally intensive applications.
IDE	Also known as Integrated Development Environment, a software system designed for supporting software writing, often including a source code editor, a debugger and build automation tools.
IGE	Initiative for Globus in Europe
INCA	Periodic, automated, user-level testing of Grid software and services - http://inca.sdsc.edu/drupal
INGV	Istituto Nazionale di Geofisica e Vulcanologia
INSPIRE	Infrastructure for Spatial Information in Europe, an EU directive aimed at enabling the access, sharing and re-use of spatial data for governance and policy making purposes
IRIS	Incorporated Research Institutions for Seismology (Data-Center)
globalCMT	Global Centroid-Moment-Tensor Project
iRODS	Integrated Rule-Oriented Data-management System - https://www.irods.org/
ISO 20000	The international standard for IT Service management - http://20000.fwtk.org/iso-20000.htm
ITIL	Information Technology Infrastructure Library - http://www.itil-officialsite.com
ITU	International Telecommunication Union
JRA1	Equivalent to Work Package 8 (WP8)
JRA2	Equivalent to Work Package 9 (WP9)
Kepler	Open source scientific workflow management system.
KNIME	Open source system for data mining.
LAPACK	Linear Algebra PACKage
LDAP	Lightweight Directory Access Protocol
LFC	the WLCG File Catalog; part of the gLite middleware see gLite above
LMU	Ludwig-Maximilians-Universitaet Muenchen
LRZ	Leibniz-Rechenzentrum

MAPPER	Multiscale Applications on European e-Infrastructure - http://www.mapper-project.eu
Meandre	Semantic-driven data-intensive workflow execution environment.
metadata	Data that describes data. Metadata may include references to schemas, provenance, and information quality. In Seismology, metadata may also refer to data required in order to sanitise a seismograph's response.
Metis	A set of serial programs for partitioning graphs, partitioning finite element meshes, and producing fill reducing orderings for sparse matrices.
miniSEED	The miniSEED format is a subformat of the commonly used SEED data format used for archiving seismological data.
MKL	Intel Math Kernel Library
MoU	Memorandum of Understanding
MPI	Message Passing Interface
myExperiment	Collaborative virtual research environment for sharing scientific workflows.
MyProxy	Open source software for managing X.509 Public Key Infrastructure (PKI) security credentials. Provide authentication and authorization mechanisms for controlling access to credentials. - http://grid.ncsa.illinois.edu/myproxy
NA	Network activities
NA2	Equivalent to Work Package 2 (WP2)
NCSA	National Center for Supercomputing Applications - http://www.ncsa.illinois.edu/
NERA	Network of European RI for Earthquake Risk Assessmet and Mitigation. EC I3 project, www.nera-eu.org
NERIES	Network of RI for European seismology. EC I3 project ended 2010 www.neries-eu.org
NGI	National Grid Initiatives - http://www.egi.eu/about/ngis
ObsPy	A Python framework for processing seismological data. http://obspy.org/
OGSA	Open Grid Services Architecture supported by Globus. - http://www.globus.org/ogsa
OGSA-DAI	Open Grid Service Architecture Data Access and Integration, an open source product for distributed data access and management.
ontology	In computer science, a formal explicit specification of a shared conceptualisation.
OpenMP	Open Multi-Processing
ORFEUS	Observatories and Research Facilities for European Seismology.www.orfeus-eu.org
PBS	Portable Batch System
PDCA	The Plan-Do-Check-Act cycle - http://labspace.open.ac.uk/mod/resource/view.php?id=346003
Pegasus	Workflow management service, mapping and executing workflows on available compute resources.
PID	Persistent Identifier : A persistent identifier is a permanent, location- independent and globally unique identifier for a resource. Persistent identifiers are generally assigned by agencies who undertake to provide reliable, long-term access to resources. Examples of persistent identifiers include Digital Object Identifiers, Uniform Resource Names, Handles and Archival Resource Keys.
Pilot application	main software routine within a use case (e.g., the cross-correlation analysis in the use case addressing the velocity variations of the Italian peninsula crust properties).
portal	In the context of knowledge discovery, a tool designed for a particular group of domain experts that can be used via their browsers; it enables them to establish their identity and rights, and to pursue conveniently a set of research tasks for which the portal is designed.
PRACE	Partnership for Advanced Computing in Europe - http://www.prace-project.eu/
pre-processing	One or operations performed on the observed data to prepare the latter for the analysis an/or for performing quality control checks.
processing element -- PE	A software component that encapsulates a particular functionality and can be used to construct a workflow.
Python Basemap (Matplotlib Basemap)	A library for plotting 2D data on maps in Python
QUEST	QUantitative Estimation of Earth's Seismic Sources and Structure
RAPID	Rapid portals for Seismological Waveform Data - http://research.nesc.ac.uk/node/423
RapidSeis	Portal for interactively running C++ scripts on seismological waveform data Not yet ready for Python.
rdseed	http://www.iris.edu/software/downloads
Real (or observed) Seismograms	Data recorded at one or more seismic stations and made available by data-centers (size of data depends on duration and sampling rate, also meta-data)
Redmine	Project management web application - http://www.redmine.org
registry	A persistent store of definitions and descriptions of data or software components and their relationships accessed by tools and other elements of a distributed research environment. It is intended to facilitate discovery and use of the components.
RegSEM	A Spectral Element Method code to compute seismic wave propagation - http://www.ipgp.fr/~paulcup/RegSEM.html
repository	A store holding software definitions, other shared code and data, that supports distributed concurrent access, update and version management.
Research Infrastructure	The collection of equipment, resources, organisations, policies and community support that enables a particular discipline to conduct research. Normally, this refers to the advanced facilities that enable frontier research, such as the research infrastructures endorsed by ESFRI.

research object	A research item which some researcher wishes to identify. It may be a collection of primary or derived data, code, a workflow, a service, an ontology, a set of metadata, etc. It may be a paper or a talk. Often it is a composition of such elements.
SA1	Equivalent to Work Package 5 (WP5)
SA2	Equivalent to Work Package 6 (WP6)
SA3	Equivalent to Work Package 7 (WP7)
SAC	http://www.iris.edu/software/sac
SAGA	A Simple API for Grid Applications - http://www.saga-project.org/
SAML	Security Assertion Markup Language (SAML) is an XML-based open standard for exchanging authentication and authorization data between security domains - http://saml.xml.org/about-saml
SCALASCA	A software tool that supports the performance optimization of parallel programs by measuring and analyzing their runtime behaviour
science gateway	A consistently presented set of facilities designed to be a convenient working environment for researchers in a particular domain, in this case seismology. It should bring together access to all of the capabilities and resources such a researcher needs: including catalogues of available data and tools, established methods and arrangements for applying them with specified parameters to specified data.
SDX	Seismic Data eXplorer
SEED, mSEED, SAC	Standard seismic data formats
SEC3D	Programme package for simulation of elastic wave propagation in 3D Cartesian earth models
SeisSol	A simulation software based on the Discontinuous Galerkin Finite Element Method - http://www.geophysik.uni-muenchen.de/~kaeser/SeisSol/
SEM	Spectral Element Method wave propagation
SES3D	Programme package for simulation of elastic wave propagation in a spherical section and the computation of Frechet kernels - http://www.geophysik.uni-muenchen.de/Members/fichtner/ses3d
Shibboleth	Standards based, open source software package for web single sign-on across or within organizational boundaries - http://www.shibboleth.net
SHIWA	Sharing Interoperable Workflows for large-scale simulations on Available DCIs - http://www.shiwa-workflow.eu/
SCI-BUS	SCIentific gateway Based User Support (http://www.sci-bus.eu)
SciPy	Scientific Tools for Python
SL5	Scientific Linux 5
SL6	Scientific Linux 6
SLES	SUSE Linux Enterprise Server
SLURM	A high scalable resource manager
SPECFEM3D	Simulation software code based on the spectral-element method for 3D seismic wave propagation in sedimentary basins or any other regional geological model - http://www.seg.ethz.ch/software/specfem3D
STF	Source Time Function. Shape of the original "signal-wave" of the earthquake, calculated by adjoint source inversion (or other methods). The "signature" of the STF is present in the recorded seismograms.
SuperMIG/SuperMUC	The name of a new supercomputer of the LRZ
Synthetic Seismograms	Waveform(time series) calculated in a computer simulation (size of data depends on duration and sampling rate, also meta-data). It is dependent on the solver, the computational grid(mesh), the earth model, the event parameters, and the location of "observation".
Taverna	Open source scientific workflow management system.
The PDCA cycle	The Plan-Do-Check-Act cycle http://labspace.open.ac.uk/mod/resource/view.php?id=346003
Trident	Microsoft workflow management system.
UEDIN	The University of Edinburgh
UMD	Unified Middleware Distribution - http://www.eu-emi.eu/
UNICORE	Uniform Interface to Computing Resources - http://www.unicore.eu/
Use case	In software and systems engineering, a use case is a list of steps, typically defining interactions between a role and a system, to achieve a goal. The actor can be a human or an external system (cf http://en.wikipedia.org/wiki/Use_case). In VERCE it is assumed to represent the entire scientific application (e.g., analysis of the noise cross-correlation of the Italian seismic networks for 6 years period to detect temporal variations of the Crust material properties)
VERCE architecture	A high-level and coherent design for the VERCE e-Infrastructure; it evolves as the seismological goals and digital environment evolve and become better understood. It should guide the development of successive VERCE platforms.
VERCE e-Infrastructure	An envisaged result of VERCE, as an integrated computational and data environment that presents a coherent virtual research environment in which to conduct seismology research and eventually research in other Earth sciences.
VERCE Platform	The current realisation of the VERCE e-Infrastructure at any time in the VERCE project. Initially this is not fully integrated and may only constitute a partial implementation. Nevertheless, it is sufficient both to pursue research identified as priority seismology use cases and to develop and test the design of the VERCE e-Infrastructure. The VERCE platform is an approximation to the VERCE e-Infrastructure. These approximations should converge on the VERCE e-Infrastructure by the end of the VERCE project.
virtual research environment (VRE)	A presentation of (ideally all of) the resources a researcher may need in a consistent and easily used form. These resources include catalogues, data, metadata, libraries, tools, workflows, programs, services, visualisation systems and research methods.
VOMS	Virtual Organization Membership Service - http://www.globus.org/grid_software/security/voms.php

W3C	World Wide Web Consortium, an international community of member organisations and the public that works to define and promote standards for web technologies.
web service	A software system designed to support interoperable machine- or application-oriented interaction over a network.
WLCG	the Worldwide Large Hadron Collider (CERN particule accelerator) Computing Grid - http://lcg.web.cern.ch/lcg
workbench	In this context a work environment for a computationally adept worker, such as a data-analysis expert, a data-intensive engineer or an application developer. It may be an IDE, an advanced editor or a command-line interpreter. It should provide all of the operations those workers need for creating, building, analysing, testing, debugging and making available the seismology and e-Infrastructure components. Many of the tools in a workbench will be familiar and widely used, a few will be specific to VERCE.
workflow	A process of composed data-handling tasks, computational tasks and human interactions intended to implement a research method or established working practice.
WP	Work Package
WP1	NA1
WP2	NA2
WP3	NA3
WP4	NA4
WP5	SA1
WP6	SA2
WP7	SA3
WP8	JRA1
WP9	JRA2
WP leader	The institution that has the responsibility for a certain WP, not the single person. e.g. NA1 leader is CNRS
wrapper	A design pattern where a piece of code allows computational or data-handling components to work together that normally could not because of incompatible interfaces.
X.509	ITU-T (Telecommunication Standardization Sector) standard for a public key infrastructure (PKI) and Privilege Management Infrastructure (PMI) - http://www.itu.int/rec/T-REC-X.509/en
XML	Extensible Markup Language.
XSEDE	Extreme Science and Engineering Discovery Environment - https://www.xsede.org/
XtreemFS	open source distributed and replicated filesystem - http://www.xtreemfs.org
ZigZag	Language used by Meandre for describing the directed graphs that define workflows.