

New developments in digital library services: textual and non-textual information in a science portal

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Tokyo
March 8, 2011



TIB Hannover – Some of the facts

= **German National Library of Science and Technology**

- engineering, architecture, chemistry, information technology, mathematics and physics
- Founded in 1959
- Financed by Federal Government and all Federal States

Main Building



Entrance Hall



Reading Room



Marstall Building



Marstall Building – a former horse stable



Castle



Main Stacks



TIB Hannover – Some of the facts



- €8m annual acquisition budget



- 18,500 journal subscriptions
- 7m items



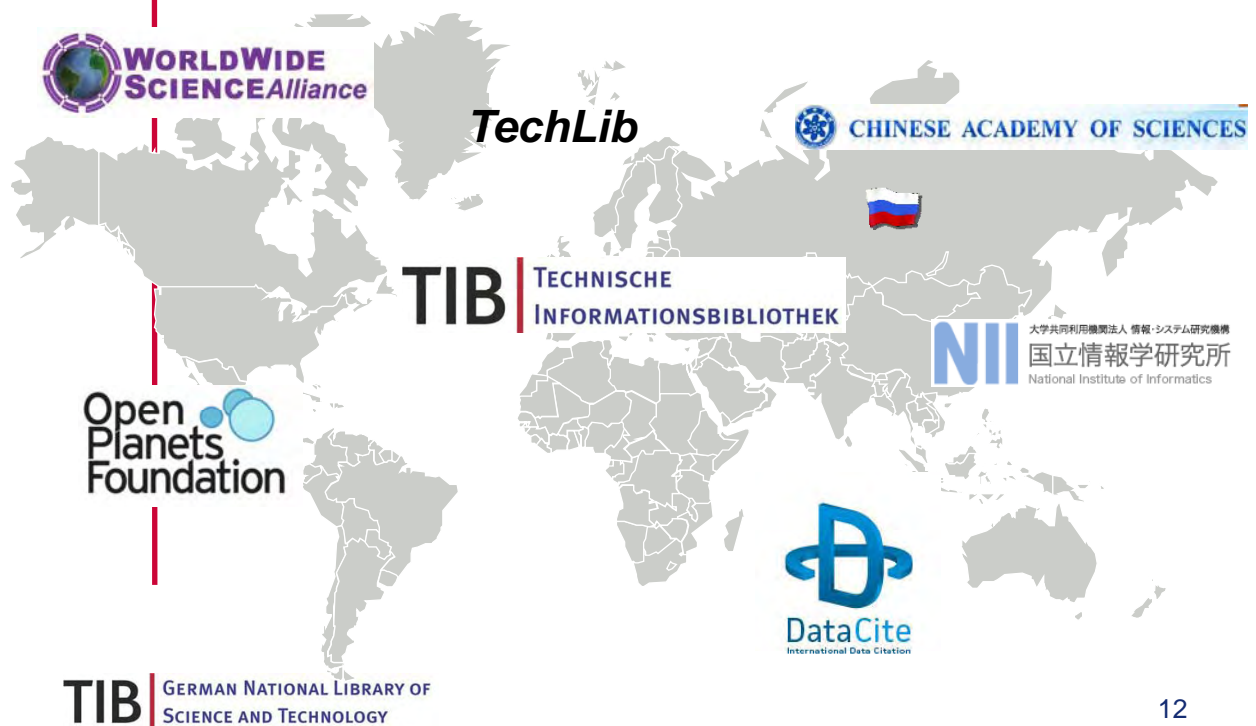
- Staff: ca. 175 FTE

Networks in Germany



11

International Networks



12

Customer worldwide

Vision and Strategy

A Gap

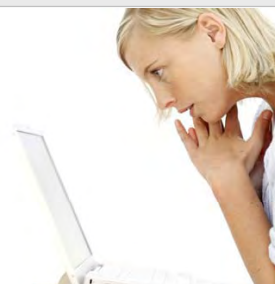
- **A widening gap in the scientific record between published research in a text document and the data that underlies it**
- **As a result, datasets are**
 - Difficult to discover
 - Difficult to access
- **Scientific information gets lost**



Competence Centre for non-textual materials (CNM)



The vision of the Competence Centre is to make efficient tools and technologies available to researchers, teachers and students, to enable them to search in a multimedia database through a central portal, which is characterised by extensive, cross-media content, simple and media-specific access and high hit rates.



CNM Goal I



1. Establishing a media centre for multimedia

- Collection, indexing, provision
- Automatic content analysis
- Digitalisation and archiving
- Citability by allocating DOIs
- Integration of suitable search and presentation processes
- Advice from knowledge providers on questions of standardisation, archiving and provision

CNM Goal II



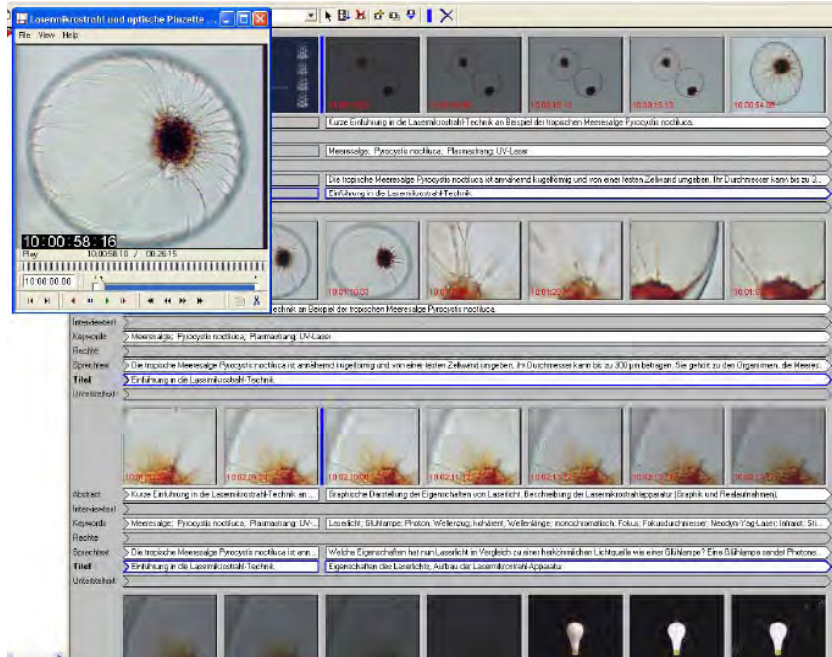
2. Establishing an infrastructure for referencing research data

- Collection and provision of metadata
- Citability by allocating DOIs
- Coordination of infrastructure for data storage
- Development of a visual search process
- Scientific advice

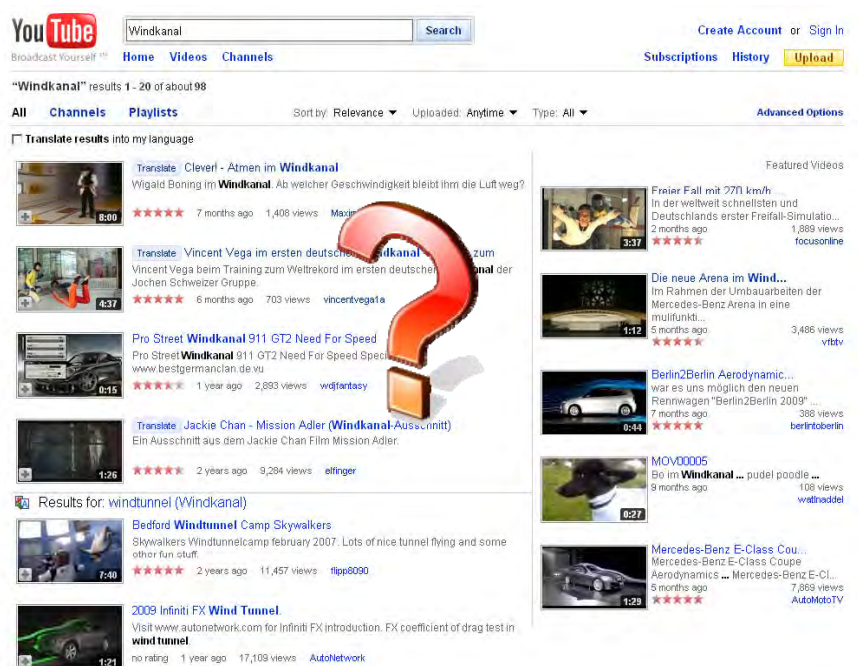


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Media Indexing



Media Provision



Archiving of Analogue Films



Analogue

Source material	16 mm / 35 mm
Digitalisation	Digibeta (in the future JPEG 2000, file based)
Encoding	MPEG1, MPEG2, wma, flash ...
Storage	Digibeta Master and Digibeta DUP remain in the media archive Original is in the Federal Archive

Archiving Video Material



Digital

Source material	SD > Digibeta, D1, D2, DV (Consumer), DVCam HD > Hdcam, HDCAM SR, HDV
Digitalisation	SD > Digibeta (in the future JPEG 2000) HD > HDCAM SR
Encoding	MPEG1, MPEG2, wma, flash ...
Storage	Digibeta Master and Digibeta DUP remain in the media archive Regular copying onto the best possible quality carriers

Automatic Content Analysis

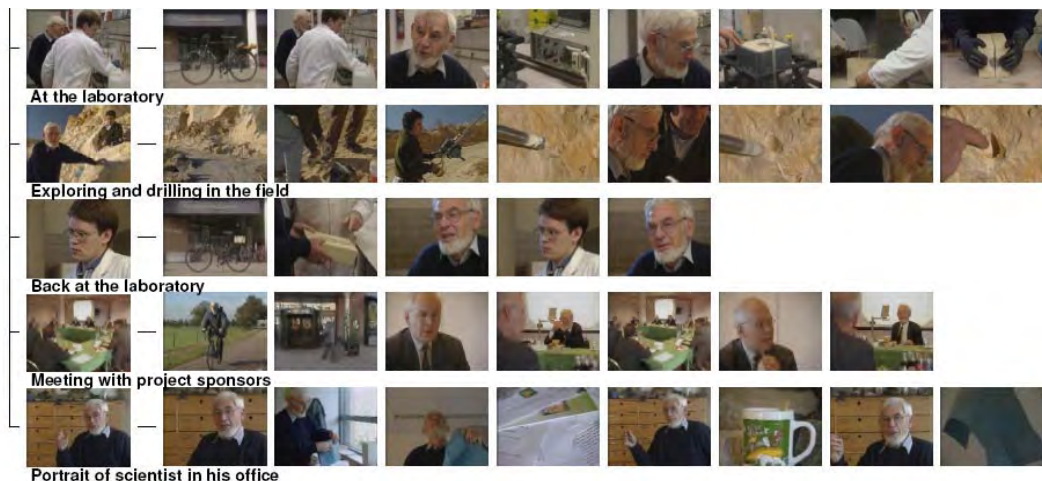


- Shot and scene detection
- Camera movement detection (tilt and zoom)
- Face detection / identification
- Object detection
- Context detection (indoor/outdoor, countryside, buildings)
- Genre detection (news, sport, advertising)
- Event analysis (tennis, football, etc.)
- Text recognition
- Speech recognition

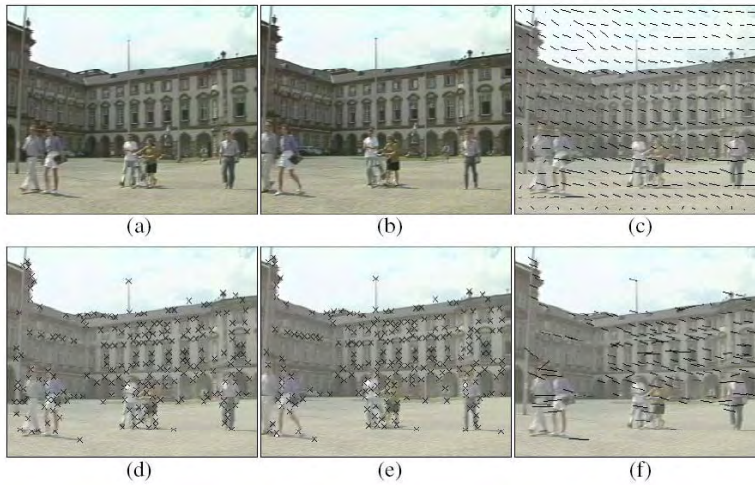
Automatic Content Analysis



- Scene recognition: A *scene* is a timed video segment with 3 consistent properties: Event, Location and Time period



Automatic Content Analysis



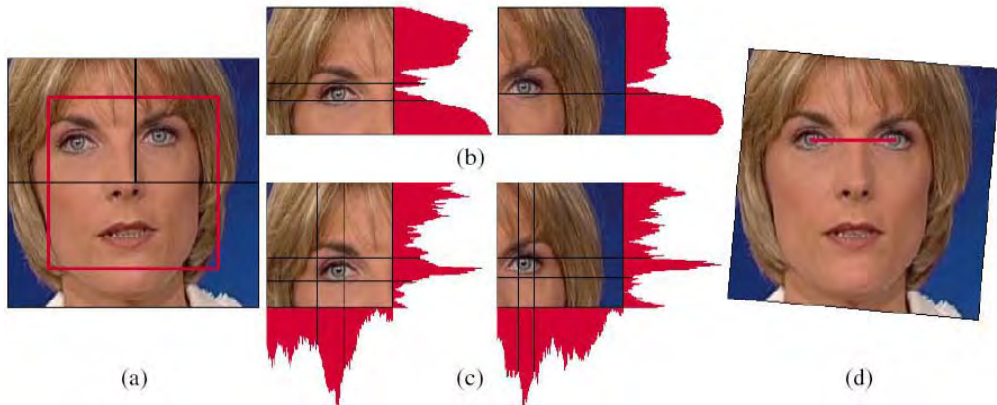
Estimation of the movement vectors for two pictures (a) and (b) from a video sequence.

Automatic Content Analysis

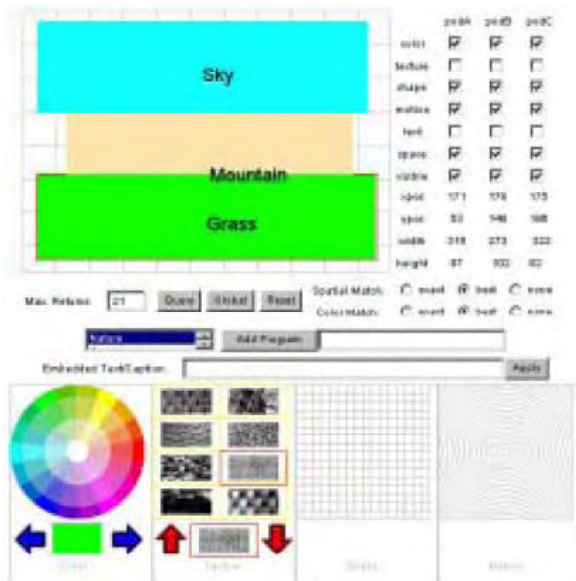


Object recognition through motion analysis

Automatic Content Analysis



Research Topic: Search Process



Research Topic: Visualisation



Research data

What is the general problem with data?

The Research Trajectory

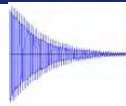
Data



Information

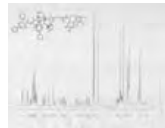


Knowledge



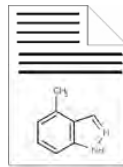
... is lost!

analysed
interpreted



... is traceable

published



... is accessible












Publication

Solution

- Creation of new and strengthening of existing data centres
- Global access to data sets and their metadata through existing catalogues
- By the use of persistent identifiers

- The DOI system is a worldwide system for persistent and actionable identification and interoperable exchange of intellectual property on digital networks
- A DOI name is made up of two components, the prefix and the suffix



	Einfache Suche Erweiterte Suche Suchergebnis Zwischenspeicher Suchgeschichte Hilfe			© 1998-2009 OCLC PICA							
TIBORDER Katalog	<input type="text" value="suchen [und]"/> <input type="button" value="Alle Wörter"/> <input type="button" value="sortiert nach"/> <input type="text" value="Erscheinungsjahr"/> <input type="text" value="exk primaerdaten"/> <input type="button" value="Suchen"/> Nummer: Abmelden										
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Suchergebnis sichten Datenbankauswahl Bestellung ohne Recherche Denutzerinfo TIB Homepage	<ol style="list-style-type: none"> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 1. Pollen record and age determination of profile AHS, supplementary data to: Behre, Karl-Ernst (1976): Pollenanalytische Untersuchungen zur Vegetations- und Siedlungsgeschichte bei Flögelin und im Ahlenmoor (Elb-Weser-Winkel), Probleme der Küstenforschung im südlichen Nordseegebiet, 11, 101-118 / Karl-Ernst Behre. - 2009-01-20  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 2. Pollen record of sediment core MD95-2043, supplementary data to: Fletcher, William J; Sánchez Gofil, Maria Fernanda (2008): Orbital- and sub-orbital-scale climate impacts on vegetation of the western Mediterranean basin over the last 48,000 yr, Quaternary Research, 70(3), 451-464 / William J Fletcher. - 2009-01-22  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 3. Chemical composition of basalts from ODP Leg 115, supplementary data to: Fisk, Martin R; Duncan, Robert A; Baxter, Alistair N; Greenough, John D; Hargraves, Robert B; Tatsumi, Yoshiyuki; Shipboard Scientific Party (1989): Reunion hotspot magma chemistry over the past 65 m.y.: Results from Leg 115 of the Ocean Drilling Program, Geology, 17, 934-937 / Martin R Fisk. - 2009-01-23  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 4. Stable isotope ratios of foraminifera from sediment cores off northeastern Brazil, supplementary data to: Arz, Helge W; Pätzold, Jürgen; Wefer, Gerold (1999): The deglacial history of the western tropical Atlantic as inferred from high resolution stable isotope records off northeastern Brazil, Earth and Planetary Science Letters, 167(1-2), 105-117 / Helge W Arz. - 2009-01-23  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 5. Sedimentology and stable isotope ratios of planktonic foraminifera from two sediment cores off Northeastern Brazil, supplementary data to: Arz, Helge W; Pätzold, Jürgen; Wefer, Gerold (1998): Correlated millennial-scale changes in surface hydrography and terrigenous sediment yield inferred from last-glacial marine deposits off northeastern Brazil, Quaternary Research, 50(2), 157-166 / Helge W Arz. - 2009-01-23  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 6. Ages and biostratigraphic datums of DSDP sediments from the Pacific Ocean and the Caribbean Sea, supplementary data to: Keigwin Jr, Lloyd D (1978): Pliocene closing of the Isthmus of Panama, based on biostratigraphic evidence from nearby Pacific Ocean and Caribbean Sea cores, Geology, 6, 630-634 / Lloyd D Keigwin Jr. - 2009-01-23  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 7. Frequency distribution of graded turbidite cycles in DSDP sediments from the Coral Sea Basin and the Sea of Japan, supplementary data to: deVries Klein, George (1984): Relative rates of tectonic uplift as determined from episodic turbidite deposition in marine basins, Geology, 12, 48-50 / George deVries Klein. - 2009-01-23  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 8. Basalt density, basement age, and intrusive/extrusive relations from DSDP Legs 2 through 7, 9, and 14, supplementary data to: Salisbury, Matthew II; Christensen, Nikolas I (1973): Progressive weathering of submarine basalt with age: further evidence of sea-floor spreading, Geology, 1, 63 - 64 / Matthew H Salisbury. - 2009-01-22  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 9. Element concentrations, and Sr and Os isotope ratios of DSDP Leg 92 metalliferous carbonates, supplementary data to: Ravizza, Gregory E (1993): Variations of the 187Os/186Os ratio of seawater over the past 28 million years as inferred from metalliferous carbonates, Earth and Planetary Science Letters, 118(1-4), 335-348 / Gregory E Ravizza. - 2009-01-20  </div> <div style="background-color: #ccc; width: 20px; height: 15px; margin-bottom: 5px;"></div> <div> 10. Magnetic properties of Cenozoic MORB and Cretaceous MORB from DSDP and ODP holes, supplementary data to: Wang, Daming; Van der Voo, Rob; Peacor, Donald R (2005): Why is the remanent magnetic intensity of Cretaceous MORB so much higher than that of mid to late Cenozoic MORB?, Geosphere, 1(3), 138-146 / Daming Wang. - 2009-01-20  </div> 										
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Wort</th> <th style="width: 20%;">Typ</th> <th style="width: 20%;">Anzahl</th> <th style="width: 40%;"></th> </tr> </thead> <tbody> <tr> <td>primaerdaten</td> <td>Kommentar (Exemplar)</td> <td>1316</td> <td> <div style="float: right;"> gehe zu <input style="width: 50px;" type="text"/> 1 - 10 von 1316 </div> </td> </tr> </tbody> </table>				Wort	Typ	Anzahl		primaerdaten	Kommentar (Exemplar)	1316	<div style="float: right;"> gehe zu <input style="width: 50px;" type="text"/> 1 - 10 von 1316 </div>
Wort	Typ	Anzahl									
primaerdaten	Kommentar (Exemplar)	1316	<div style="float: right;"> gehe zu <input style="width: 50px;" type="text"/> 1 - 10 von 1316 </div>								

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Title: [SAFOD Main Hole downhole logging data phase 2 \(2005\), 2975-3387m](#)
Author: [SAFOD](#)
Published: Potsdam, Germany : GeoForschungsZentrum Potsdam(GFZ), 2008-08-27
Extent: 99974 DataPoints.
Note: CreationDate: 2007-08-09
This dataset is cited by doi:10.1029/2006GC001388
SAFOD is motivated by the need to answer fundamental questions about the physical and chemical processes controlling faulting and earthquake generation within a major plate-bounding fault. SAFOD will drill and instrument an inclined borehole across the San Andreas Fault Zone to a depth of 3.2 km, targeting a repeating microearthquake source. The drill site is located west of the vertical San Andreas Fault on a segment of the fault that moves through a combination of aseismic creep and repeating microearthquakes. It lies at the extreme northern end of the rupture zone of the 1966, Magnitude 6 Parkfield earthquake, the most recent in a series of events that have ruptured the fault five times since 1857.
This data set contains open hole geophysical wireline logging data from 2975-3387m (measured depth relative to Kelly Bushing, which is 9,45m above ground level).

Techn. data: [Format: text/tab-separated-values](#)
Links: [doi: 10.1594/GFZ.SDDb.1127](#)
[urn:nbn:de:hbz:10.1594/GFZ.SDDb.1127](#)

Holding: [Display free access!](#)
Note: **Primaerdenaten**

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Scientific Drilling Database
Data from Deep Earth Sampling and Monitoring

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+ Research Programs
+ Sampling Gear
+ Analytical Parameters
+ Admin

GFZ ICDP POTSDAM

Dataset Description

Citation: [SAFOD, ; \(2008\): SAFOD Main Hole downhole logging data phase 2 \(2005\), 2975-3387m. Scientific Drilling Database. doi:10.1594/GFZ.SDDb.1127](#)
[Download Citation \(EndNote\)](#)

DOI: 10.1594/GFZ.SDDb.1127

Title: SAFOD Main Hole downhole logging data phase 2 (2005), 2975-3387m

Abstract: SAFOD is motivated by the need to answer fundamental questions about the physical and chemical processes controlling faulting and earthquake generation within a major plate-bounding fault. SAFOD will drill and instrument an inclined borehole across the San Andreas Fault Zone to a depth of 3.2 km, targeting a repeating microearthquake source. The drill site is located west of the vertical San Andreas Fault on a segment of the fault that moves through a combination of aseismic creep and repeating microearthquakes. It lies at the extreme northern end of the rupture zone of the 1966, Magnitude 6 Parkfield earthquake, the most recent in a series of events that have ruptured the fault five times since 1857. The Parkfield region is the most comprehensively instrumented section of a fault anywhere in the world, and has been the focus of intensive study for the past two decades. This data set contains open hole geophysical wireline logging data from 2975-3387m (rel. to rig floor, 9,45m abv gnd)

[Show in Google Earth](#)

Related Publications:

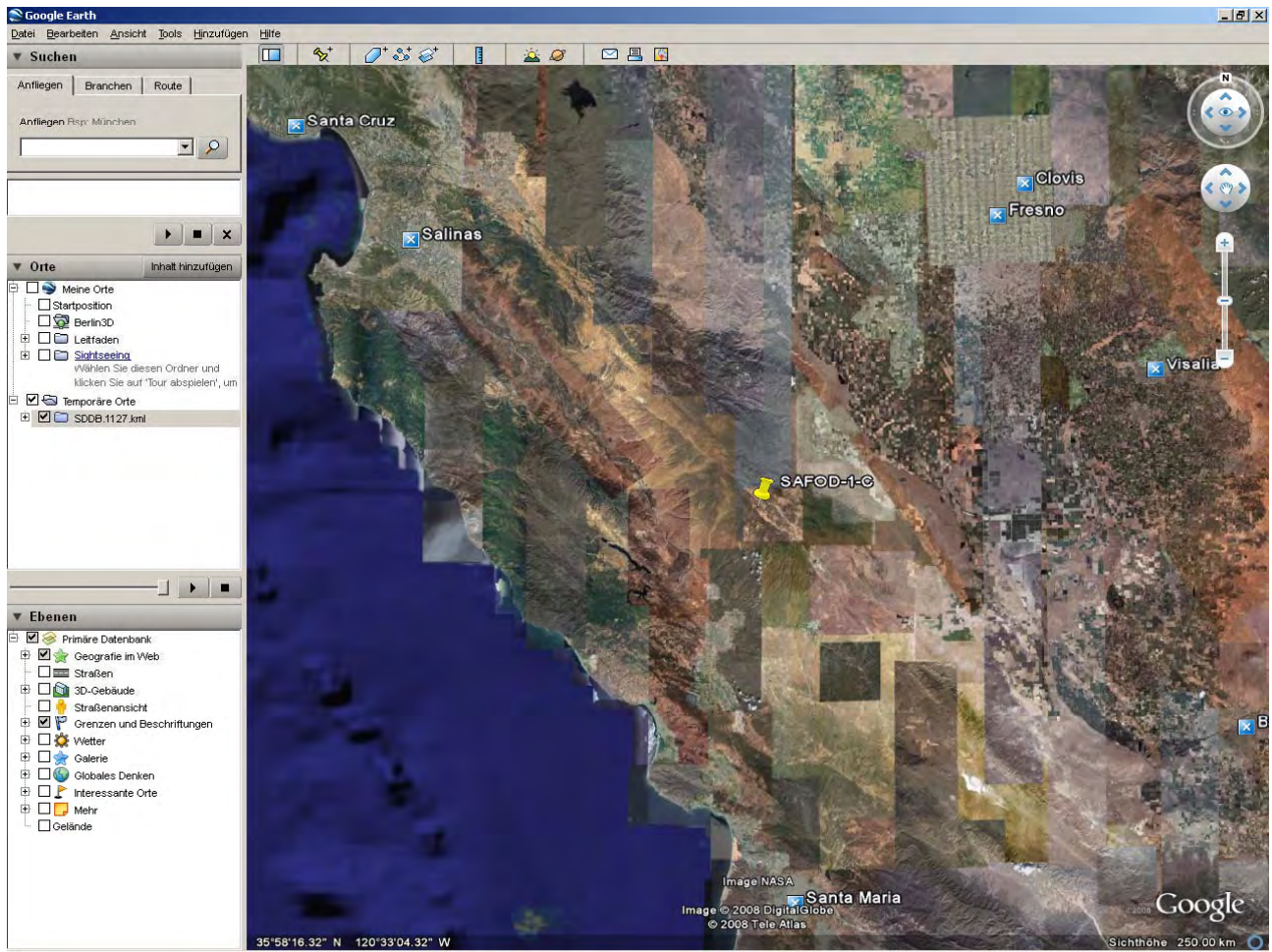
Activities: [SAFOD-1-C](#)

Latitude: 35.9712 °N
Longitude: -120.5512 °E
Elevation: m above site datum
Date/Time: 2004-07-20 00:00:00 UTC
Program: International Continental Scientific Drilling Program
Expedition: SAFOD
Platform: Land based
Gear: drilling rig

Datapoints: 99974

Parameter(s):

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Separator: Comma

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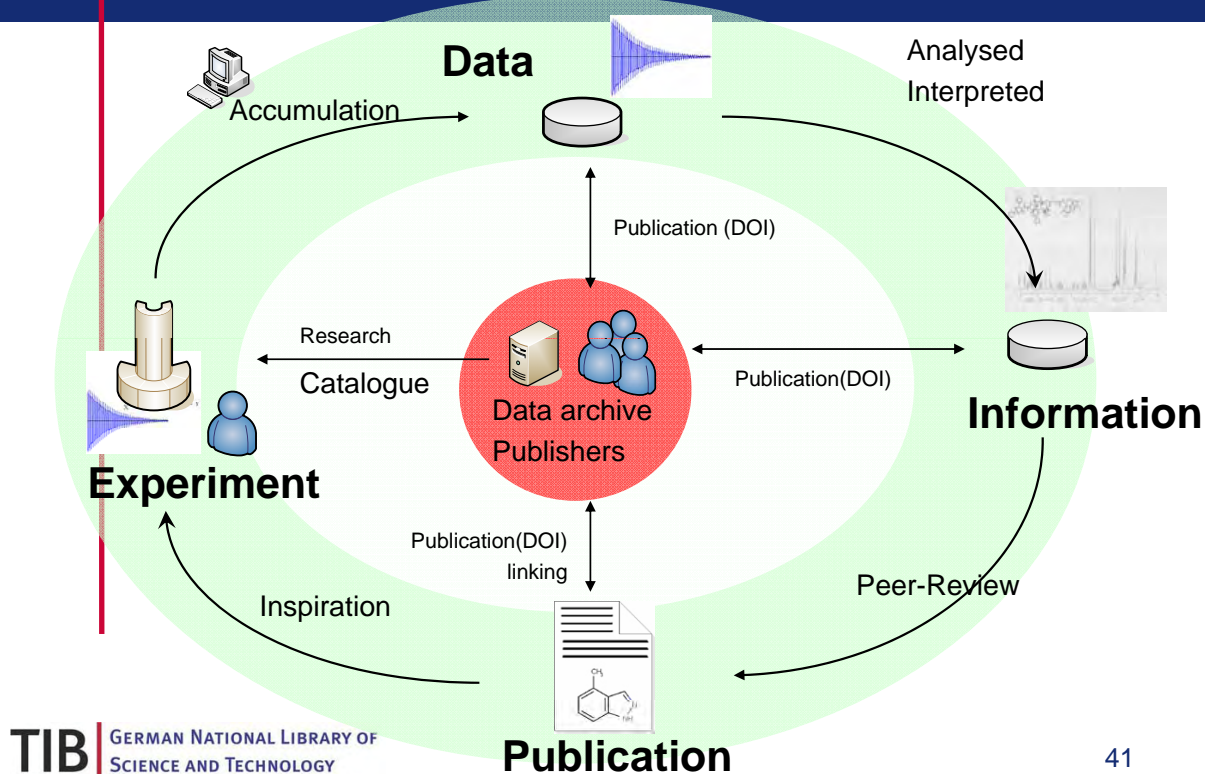
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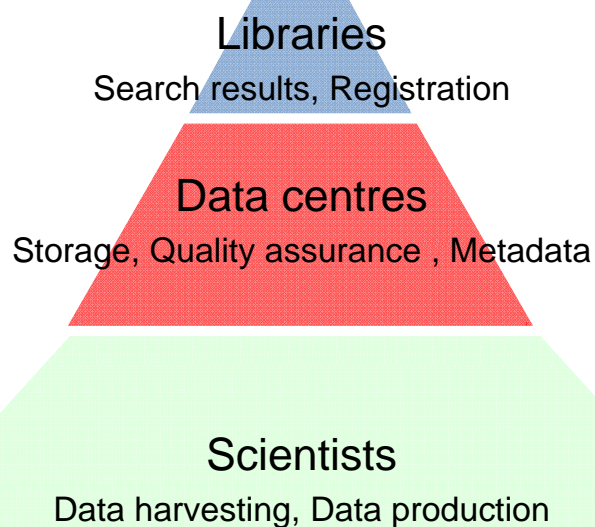
Last Modification: 2006-07-21 | Some rights reserved by Daten- und Rechenzentrum, GeoForschungszentrum Potsdam

An Ideal Research Cycle



41

3 layered Data Infrastructure



42

State of Developments

- So far the TIB is a DOI registration agency for primary data (and other non-commercial scientific information), with other local institutions as its customers
- In 1999 the publishers funded their independent DOI agency CrossRef
- In 2009 TIB has been transited the DOI registration to a new worldwide agency, named DataCite.

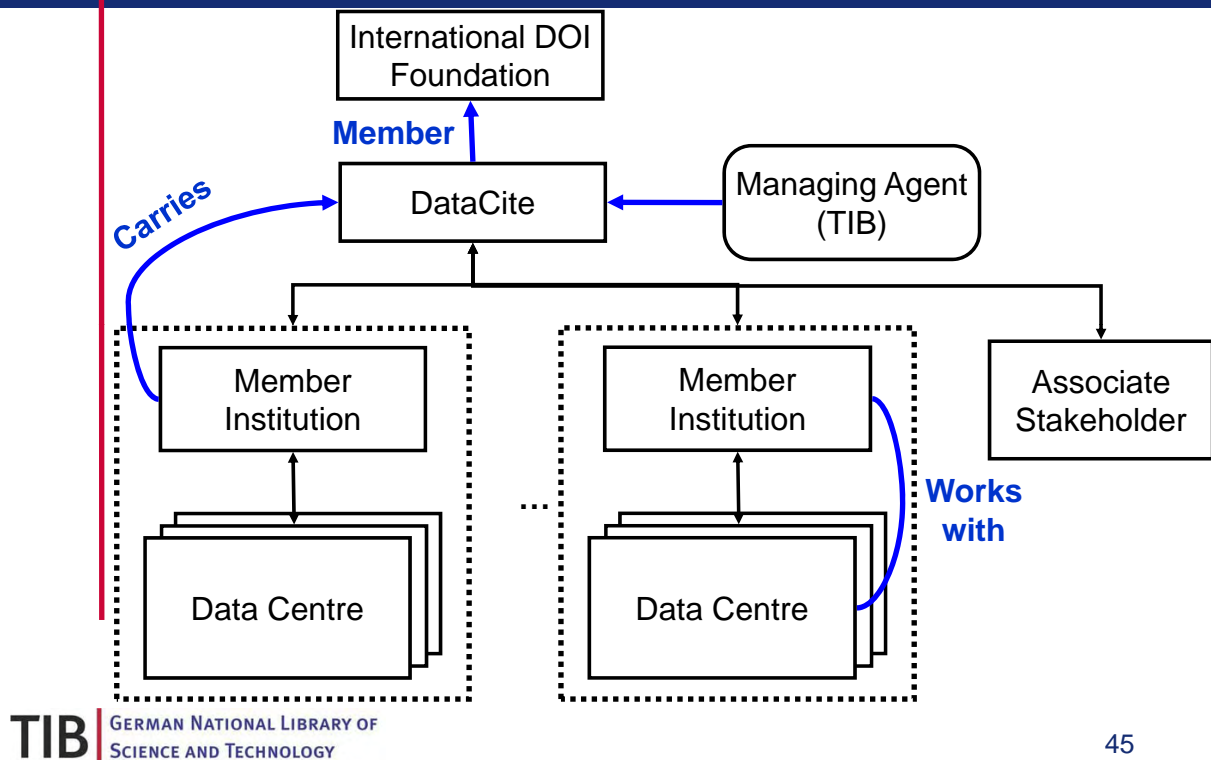
DataCite

- DataCite supports researchers by enabling them to locate, identify, and cite research datasets with confidence
- DataCite supports data centres by providing workflows and standards for data publication
- DataCite supports publisher by enabling linking from articles to the underlying data

<http://www.datacite.org>



DataCite Structure



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Members

- Technische Informationsbibliothek (TIB)
- Canada Institute for Scientific and Technical Information (CISTI),
- California Digital Library, USA
- Purdue University, USA
- Office of Scientific and Technical Information (OSTI), USA
- Library of TU Delft, The Netherlands
- Technical Information Center of Denmark
- The British Library
- ZB Med, Deutschland
- ZBW, Deutschland
- Gesis, Deutschland
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- L'Institut de l'Information Scientifique et Technique (INIST), Frankreich
- Swedish National Data Service (SND)
- Australian National Data Service (ANDS)

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Virtual Research Environment



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Thank you for your attention

