PANGAEA® –
Long-term archiving and publication of earth science data

Stefanie Schumacher, Amelie Driemel, Hannes Grobe, Rainer Sieger
Alfred-Wegener-Institut, Bremerhaven
hdl:10013/epic.46894
What is PANGAEA®?

Pangaea is an open access data library for earth system research.

Data are stored georeferenced in space and time in a relational database and a tape archive.

Datasets have a citation and a DOI.

The data content is accessible on the internet via a search engine, a data warehouse and web services.

The system is open to any scientist or project to archive and publish data.
Both institutions have committed to long-term operate PANGAEA
Data Model

**where?**
- Latitude/Longitude

**when?**
- date time or geological age

**what?**
- parameter [unit]
- method

**how?**
- investigator/author/reference

**who?**
- air
- ice
- water
- rock/sediment

**object**
- numeric
- text

**numeric**
- B. dilatata [?] 178
  - 17
  - 4

**text**
- Lithology
  - Aleutic clay
  - Nannofossil clays
Data in PANGAEA - Supplement

Citation: Allan, ASR et al. (2008): Geochemistry of tephras from the Taupō Volcanic Zone. doi:10.1594/PANGAEA.815949

Abstract: The Taupō Volcanic Zone (TVZ), central North Island, New Zealand, is the most active Quaternary volcanic system in the world. Silicic tephras recovered from Ocean Drilling Programme Site 1123 have been identified as some of the most important eolian tephras deposited on land. These tephras are important in understanding the Quaternary evolution of the Taupō Volcanic Zone.

Trace element data allow for the discrimination of different tephras with similar major element chemistry and the establishment of sequential tephra boundaries between sediment cores. The new data provides a more detailed record of explosive TVZ volcanism than previously described. The new tephras provide a more detailed record of explosive TVZ volcanism than previously described. The new tephras provide a more detailed record of explosive TVZ volcanism than previously described.

Further details: Table 1. Summary of laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) instrumental and analytical conditions.

Download Data: Download ZIP file containing all datasets as tab-delimited text (see the following character encoding: UTF-8, Unencoded PANGAEA defaults).

Datasets listed in this Collection:
1. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 2) Mean major and trace element compositions of representative tephras from the four major types identified in ODP Site 181-1123A tephras. doi:10.1594/PANGAEA.815925
2. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 3a) Major element compositions of ODP Hole 181-1123A tephras. doi:10.1594/PANGAEA.815921
3. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 3b) Major element compositions of ODP Hole 181-1123C tephras. doi:10.1594/PANGAEA.815922
5. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 5b) Major element compositions of onshore Taupō Volcanic Zone tephras. doi:10.1594/PANGAEA.815923
6. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 5c) Major and trace element compositions of ODP Hole 181-1123A tephras. doi:10.1594/PANGAEA.815927
7. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 5d) Major and trace element compositions of ODP Hole 181-1123B tephras. doi:10.1594/PANGAEA.815931
8. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 5e) Major and trace element compositions of ODP Hole 181-1123C tephras. doi:10.1594/PANGAEA.815935
9. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 5f) Major and trace element compositions of onshore Taupō Volcanic Zone tephras. doi:10.1594/PANGAEA.815936
10. Allan, ASR; Baker, JA; Carter, L et al. (2008): Table 5g) Tephra tie-lines established between the Site ODP 181-1123 sediment cores. doi:10.1594/PANGAEA.815948
Acknowledgements:
For supplementary data see: doi:10.1594/PANGAEA.815949
Data in PANGAEA - Supplement

Citation: Allan, ASR et al. (2008): Geochemistry of tephas from the Taupo Volcanic Zone. doi:10.1594/PANGAEA.815949.

Abstract: The Taupo Volcanic Zone (TVZ), central North Island, New Zealand, is the most active Quaternary rifted system in the world. Silicic tephas recovered from Ocean Drilling Programme Site 1123 (41°17’.18”, 171°29.94’W; 3290 m water depth) in the southwest Pacific Ocean provide a well-dated record of explosive TVZ volcanism since ~1.85 Ma. We present major, minor and trace element data for 70 Quaternary tephas layers from Site 1123 determined by electron probe microanalysis (134 analyses) and laser ablation inductively coupled plasma mass spectrometry (664 analyses). Trace element data allow for the discrimination of different tephas with similar major element chemistries and the establishment of isochronous tie-lines between three sediment cores (1123A, 1123B and 1123C) recovered from Site 1123. These tepha tie-lines are used to evaluate the stratigraphy and orbitally tuned stable isotopic age model of the Site 1123 composite record. Trace element fingerprinting of tephas identifies ~4.5 m and ~7.9 m thick sections of repeated tephas in 1123A (49.0-53.5 mbsf [meters below seafloor]) and 1123C (48.1-56.0 mbsf), respectively. These previously unrecognised repeated sections have resulted in significant errors in the Site 1123 composite stratigraphy and age model for the interval 1.15-1.38 Ma and can explain the poor correspondence between ch40 profiles for Site 1123 and Site 849 (equatorial Pacific) during this interval. The revised composite stratigraphy for Site 1123 shows that the 70 tephas layers, when correlated between cores, correspond to ~37-38 individual eruptive events (tephras), 7 of which can be correlated to episodes of TVZ eruption. The frequency of large-volume TVZ-derived silicic tephas, as recorded by the deposition of tephas at Site 1123, has not been uniform through time. Rather it has been timed by short periods (25-50 ka) of intense activity bracketed by longer periods (100-150 ka) of quiescence. The most active period (at least 1 event per 7 ka) occurred between ~1.53 and 1.60 km, corresponding to the first ~130 ka of TVZ rifted volcanic activity. Since 1.3 Ma, ~90% of tephas preserved at Site 1123 and the more proximal Site 1154 were erupted and deposited during glacial periods. This feature may reflect either enhanced atmospheric transport of volcanic ash to these sites (up to 1000 km from source) during glacial conditions or, more speculatively, that these events are triggered by changes in oceanic stress accumulation associated with large amplitude sea-level changes. Only 9 ~37-38 Site 1123 tephas units (~2%) can be found in all three cores, and 22 tephas units (~6%) are only present in one of the three cores. Whether a tephas is preserved in all three cores does not have any direct relationship to eruptive volume. Instead it is postulated that tephas preservation at Site 1123 is ‘patchy’ and influenced by the vigorous nature of the deposition to the deep ocean floor as vertical density currents. At this site, at least 5 cores would need to have been drilled within a proximity of 10’s to 100’s of metres of each other to yield a 99% chance of recovering all the silicic tephas deposited on the ocean surface above it in the past 1.5 Ma.

Downloaded Data

Download ZIP file containing all datasets as tab-delimited text (see the following character encoding: UTF-8). Unencoded PANGAEA defaults
# Data in PANGAEA - Supplement

## Data Description

**Citation:**

**Project(s):**
Ocean Drilling Program (ODP)

**Coverage:**
Latitude: -41.786230 * Longitude: -171.490000

**Event(s):**
181-1123A * Latitude: -41.786230 * Longitude: -171.490000 * Date/Time Start: 1998-09-12T08:00:00.000Z * Date/Time End: 1998-09-14T23:55:00.000Z * Elevation: -3290.1 m * Penetration: 158.1 m * Recovery: 158.63 m * Location: South Pacific Ocean * Campaign: Leg181 * Basis: Joides Resolution * Device: Drilling/Dead rise (DRILL) * Comment: 17 cores; 181.1 m cored; 6 m drilled; 100.3 % recovery

**Parameter(s):**
- All standard deviations = 2sd.

### Table

<table>
<thead>
<tr>
<th>Name</th>
<th>Short Name</th>
<th>Unit</th>
<th>Principal Investigator</th>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sample ID</td>
<td>SampleID</td>
<td></td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample code/label</td>
<td>Label</td>
<td></td>
<td>Allan, Adrian SR</td>
<td>ODP sample designation</td>
<td></td>
</tr>
<tr>
<td>Depth</td>
<td>Depth</td>
<td>m</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Replicates</td>
<td>Replicates</td>
<td></td>
<td>Allan, Adrian SR</td>
<td>m</td>
<td>m</td>
</tr>
<tr>
<td>Silicon dioxide</td>
<td>SiO2</td>
<td>%</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Silicon dioxide, standard deviation</td>
<td>SiO2 std dev</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide</td>
<td>TiO2</td>
<td>%</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Titanium dioxide, standard deviation</td>
<td>TiO2 std dev</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum oxide</td>
<td>Al2O3</td>
<td>%</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aluminum oxide, standard deviation</td>
<td>Al2O3 std dev</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron oxide, FeO</td>
<td>FeO</td>
<td>%</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Iron oxide, FeO, standard deviation</td>
<td>FeO std dev</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>MnO</td>
<td>%</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manganese oxide, standard deviation</td>
<td>MnO std dev</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>MgO</td>
<td>%</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Magnesium oxide, standard deviation</td>
<td>MgO std dev</td>
<td>Allan, Adrian SR</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Downloaded dataset as tab-delimited text

The dataset can be downloaded as a tab-delimited text file using the following character encoding: UTF-8 and saved as PANGAEA.scv.
**Data Description**

**Citation:** Monien, Patrick; Schnetger, Bernhard; Brumsack, Hans-Jürgen (2015): Geochemistry of sediment core PS99/339-1. Institute for Chemistry and Biology of the Marine Environment, Carl-von-Ossietzky University of Oldenburg, Germany, doi:10.1594/PANGAEA.844917

**Project(s):** Impact of climate Induced glacier melt on marine coastal systems, Antarctica (IMCOAST/IMCONet)

**Coverage:**
- **Latitude:** -62.201300  * Longitude: -58.856200
- **Date/Time Start:** 2006-04-06T23:38:00  * **Date/Time End:** 2006-04-06T23:38:00
- **Minimum DEPTH, sedimentrock:** 0.01 m  * **Maximum DEPTH, sedimentrock:** 7.25 m

**Event(s):** PS99/339-1  
- **Latitude:** -62.201300  * **Longitude:** -58.856200  * **Date/Time:** 2006-04-06T21:38:00  * **Elevation:** 268.0 m  * **Recovery:** 7.28 m  * **Location:** Potter Cove, King George Island, Antarctic Peninsula  * **Campaign:** ANT-XXIII/4 (PS99)  * **Basis:** Polarstern  * **Device:** Gravity corer (GC)

**Comment:** Data are given in weight fractions (mass %) and are not corrected for sea salt.

**Parameter(s):**

<table>
<thead>
<tr>
<th>Name</th>
<th>Short Name</th>
<th>Unit</th>
<th>Principal Investigator</th>
<th>Method</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPTH, sediment</td>
<td>Depth</td>
<td>mm</td>
<td></td>
<td></td>
<td>geocode</td>
</tr>
<tr>
<td>Silicon oxide</td>
<td>SiO2</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
<tr>
<td>Titanium oxide</td>
<td>TiO2</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
<tr>
<td>Aluminium oxide</td>
<td>Al2O3</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
<tr>
<td>Iron oxide, Fe2O3</td>
<td>Fe2O3</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>total iron given in iron(III) oxide, mass percentages</td>
</tr>
<tr>
<td>Manganese oxide</td>
<td>MnO</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
<tr>
<td>Magnesium oxide</td>
<td>MgO</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
<tr>
<td>Calcium oxide</td>
<td>CaO</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
<tr>
<td>Sodium oxide</td>
<td>Na2O</td>
<td>%</td>
<td>Monien, Patrick</td>
<td>Wave-length dispersive X-ray fluorescence spectroscopy (WD-XRF)</td>
<td>mass percentages</td>
</tr>
</tbody>
</table>

**Download Data (login required)**

Download dataset as tab-delimited text (see the following character encoding: UTF-8, Unicode (PANGAEA default))

View dataset as HTML (shows only the first 2000 rows)
Data Search

Search engines

Google
Google Deutschland

Portals

Data Portal
German Marine Research

OAIster
Find the pearls

Project:

WRMC-BSRN
World Radiation Monitoring Center-Baseline Surface Radiation Network

IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

Library catalogues

TIB
Technische Informationsbibliothek

GBIF.ORG
Free and open access to biodiversity data

ePIC
Data Search

PANGAEA®
Data Publisher for Earth & Environmental Science

About – Submit Data – Projects – Software – Contact

www.pangaea.de
   Size: 99778 data points
   doi: 10.1594/PANGAEA.674479 - Score: 1.29 - Similar datasets

   Size: 160016 data points
   doi: 10.1594/PANGAEA.674420 - Score: 1.29 - Similar datasets

www.pangaea.de
Data search: www.pangaea.de

   Size: 9978 data points
   doi: 10.5446/PANGAEA.674470 - Score: 1.29 - Similar datasets

   Size: 160818 data points
   doi: 10.5446/PANGAEA.674420 - Score: 1.29 - Similar datasets

Data visualisation: ODV

Data Compilation

30-year record of Ozone
Data diversity
Thank You!