

Sixth International Meeting
Heat Flow and the Structure of the Lithosphere
Castle farm Bykov, June 5-10, 2006

GENERAL DAILY TIME-TABLE

7:45 – 8:45 Breakfast
9:00 – 10:30 Morning session I
10:30 – 11:00 Coffee break
11:00 – 12:45 Morning session II
13:00 – 14:00 Lunch break
14:00 – 15:30 Afternoon session I
15:30 – 16:00 Coffee break
16:00 – 18:00 Afternoon session II
18:30 – 19:30 Dinner

All meals are served (if not mentioned otherwise) in the restaurant and lounge

SOCIAL PROGRAMME

Monday, June 5, 2006

Ice Breaker Party (after arrival and late dinner at approx. 20:30 at "Beerhouse")

Tuesday, June 6, 2006

Visit to Plzeň (=Pilsen) – short city tour, guided excursion to Pilsen brewery, dinner in the restaurant "Na Spilce", Pilsen (departure after lunch at 14:15).

Return to Bykov at approx. 21:00

Wednesday, June 7, 2006

Dinner served at "Beerhouse"

Entertainment programme "Svejk Bend", at Castle farm Bykov (at 20:00)

Thursday, June 8, 2006

IHFC business meeting and general discussion (after dinner) at "Billiard" room)

Free time for the others

Friday, June 9, 2006

BBQ dinner and beer party at "Beerhouse", Castle Farm Bykov at 19:00

Saturday, June 10, 2006

Departure for Prague (after breakfast)

USEFUL INFORMATION

Address : Castle Farm Býkov (also Metternich Freizeitcenter)

Hromnice èp. 55, 330 04, okres Plzeò – sever

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PROGRAMME SESSIONS

1) Heat flow on continents and ocean.

Heat flow and continental age. Marine heat flow and oceanic age. Total heat loss of the Earth. Tectonic processes and their thermal signatures Surface heat flow and temperature extrapolation to depth

(2) Thermal measurements.

Measurement techniques, data loggers, accuracy and data reliability. Borehole temperature and its stability. Borehole convection. Temperature logs and their interpretation. Thermal conductivity and diffusivity Heat production.

(3) Geothermics of climate change.

Borehole temperature and climate reconstruction. Ground and air temperature coupling. Effect of surface conditions and their time changes. Climate warming. Long-term subsurface temperature monitoring observatories. Heat flow and permafrost studies. Climate of the past. Geothermal data and proxies.

(4) Heat and fluids.

Heat flow and geothermal energy studies. Role of the subsurface water circulation. Subsurface temperature field and hydro(geo)logy. Temperature measurements in (super)deep holes, results and knowledge obtained from KTB, Russian and Chinese superdeep holes, Chicxulub (Mexico).

(5) Additional discussion topic:

Heat Flow data Base, IHFC web pages. Reliable data base and its custodian. Data correction, duplication and clustering.

SCIENTIFIC PROGRAMME

Tuesday, June 6, 2006 (only morning sessions)

Session (1): Heat Flow on Continents and Oceans and Its Interpretation

Chairpersons: H.N.Pollack, W.D.Gosnold and Yu.Popov

Derrick Hasterock and David S. Chapman

CONTINENTAL THERMAL ISOSTASY

William D. Gosnold, Jr.

NORTHERN HEMISPHERE HEAT FLOW MAY REQUIRE SIGNIFICANT REEVALUATION

Heinrich Villinger, Marcus Fabian, Hans-Hermann Gennerich, Martin Heesemann, Bernd Heesemann and Norbert Kaul

NEWS FROM THE BREMEN MARINE HEAT FLUX GROUP

V.M.Hamza, R.R.Cardoso and C.F. Ponte Neto

GLOBAL HEAT FLOW: FANTASY AND FACTS

Claire Perry, Jean-Claude Mareschal and Claude Jaupart

UPPER MANTLE TEMPERATURE, SEISMIC VELOCITY STRUCTURE AND TECTONIC REGIME IN NORTH AMERICA.

Jean-Claude Mareschal, Claire Perry and Claude Jaupart

COMPARISON BETWEEN THE IHFC DATA BASE AND THE CANADIAN HEAT FLOW DATA SET.

Sukanta Roy, Labani Ray, Anurup Bhattacharya and R. Srinivasan

HEAT FLOW AND CRUSTAL THERMAL STRUCTURE IN SOUTHERN INDIAN SHIELD: NEW DATA FROM DEEP BOREHOLES

M. Heesemann, I. Grevemeyer, H. Villinger and N. Kaul

MARINE HEAT-FLUX MEASUREMENTS AND THERMAL MODELS ALONG THE SUBDUCTION THRUST FAULT OF THE 1960

CHILE EARTHQUAKE (MAGNITUDE MW=9.5)

Rüdiger Schellschmidt and Reinhard Jung

THE THERMAL REGIME OF THE SOUTHERN GERMAN MOLASSE BASIN

J. Francu, J. Šafanda, V. Ěermák, E. Francu

BURIAL, EROSIONAL, AND THERMAL HISTORY OF THE SW UPPER SILESIA BASIN: EFFECT OF CARPATHIAN OVERTHRUSTING

Wednesday, June 7, 2006 (Morning session)

Joint sessions (2) Thermal Conductivity—A New Generation and (4) Heat and Fluids

Chairpersons: M.P.Anderson, C.Clauser and I.T.Kukkonen

Mary P. Anderson

HEAT AS A GROUNDWATER TRACER IN THE SHALLOW SUBSURFACE

Andreas Hartmann, Renate Pechinig and Christoph Clauser

STATISTICALLY BASED THERMAL AND HYDRAULIC ROCK PROPERTIES INFERRED FROM LAB AND LOG DATA. REDUCE RISK IN PLANNING OF GEOTHERMAL INSTALLATIONS

Yu.Popov, R.Romushkevich, V.Tertychnyi, D.Korobkov, I.Bayuk, D.Miklashevskiy and V.Vertogradkiy

EXPERIMENTAL STUDYING ROCK'S THERMAL PROPERTIES: ADVANCED APPROACHES AND NEW DATA

I.T. Kukkonen, J. Safanda and V. Cermak

OUTOKUMPU DEEP DRILLING PROJECT, FINLAND: FIRST GEOTHERMAL RESULTS FROM THE 2.5 KM DEEP HOLE

Helmut Wilhelm, Yuri Popov, Hans Burkhardt, Jan Šafanda, Vladimir Èermák, Philipp Heidinger, Dimitri Korobkov, Raisa Romushkevich and Sibylle Mayr

HETEROGENEITY EFFECTS IN THERMAL BOREHOLE MEASUREMENTS IN THE CHICXULUB IMPACT CRATER

Argo Jõelet, Kalle Kirsimäe, Jüri Plado and Evelin Versh

HYDROTHERMAL CONVECTION IN THE KÄRDLA IMPACT CRATER

Svet Milanovskiy, Sergei Velikin and Vyatcheslav Istratov

THERMAL REGIME OF THE CRUST NEAR HYDROTECHNICAL OBJECTS IN PERMAFROST ZONE

V. Rath, A. Wolf, M. Bücken

3D GEOTHERMAL INVERSE MODELING WITH DETERMINISTIC AND STOCHASTIC METHODS

William D. Gosnold, Jr.

GEOTHERMAL ENERGY IS THE ETHICAL ENERGY CHOICE OF THE FUTURE

Wednesday, June 7, 2006 (Afternoon session)

Short oral introductions to poster presentations and poster presentation, sessions 1

Chairpersons: A.M.Jessop and J.C.Mareschal,

Robert N. Harris and David S. Chapman

OCEANIC HEAT FLUX, HEAT DEFICITS, AND HYDROTHERMAL MASS FLUX INCLUDING THE ROLE OF SEAMOUNTS.

Bruno Goutorbe, Francis Lucazeau, Claire Perry and Alain Bonneville

THE THERMAL REGIME OF CONTINENTAL MARGINS: METHODOLOGY, OBSERVATIONS AND NUMERICAL SIMULATIONS

O.I. Parphenuk

THERMAL AND TECTONIC REGIMES OF COMPLEX CONTINENTAL COLLISIONAL STRUCTURES

Sukanta Roy and Labani Ray

TEMPERATURE DEPENDENCE OF THERMAL CONDUCTIVITY FOR ROCKS COMPRISING THE MIDDLE AND LOWER CONTINENTAL CRUST: IMPLICATIONS FOR MODELING THERMAL STRUCTURE OF THE LITHOSPHERE

Claire Perry, Jean-Claude Mareschal and Claude Jaupart

TEMPERATURE FIELD AND SEISMIC VELOCITY BENEATH CRATONIC NORTH AMERICA: IMPLICATIONS FOR MANTLE COMPOSITION.

William D. Gosnold, Jr. and Shanaka de Silva

HEAT FLOW MODELS OF THE ANDEAN VOLCANIC ARC

Patrick M. Fulton, Demian M. Saffer, Robert N. Harris, Barbara A. Bekins

THERMAL PROCESSES AND THEIR SIGNATURE IN CALIFORNIA COAST RANGE HEAT FLOW MEASUREMENTS

Hyoung Chan Kim

HEAT FLOW IN KOREA, 2006

Hamamoto, Makoto Yamano and Goto

HEAT FLOW MEASUREMENT IN SHALLOW SEAS THROUGH LONG-TERM TEMPERATURE MONITORING: APPLICATION TO THE NANKAI SUBDUCTION ZONE

Makoto Yamano, Masataka Kinoshita, Shusaku Goto and Keiko Fujino

HIGH HEAT FLOW ANOMALIES ON AN OLD OCEANIC PLATE OBSERVED SEAWARD OF THE JAPAN TRENCH

Ben Norden, Andrea Förster and Niels Balling

HEAT FLOW AND LITHOSPHERE THICKNESS IN THE AREA OF THE NORTHEAST GERMAN BASIN: NEW CONSTRAINTS FROM MEASUREMENTS AND MODELLING

Roman I.Kutas

NEW RESULTS OF THE HEAT FLOW STUDY IN THE NORTHERN PART OF THE BLACK SEA

Lydia Dijkshoorn and C.Clauser

LONG TIME TRANSIENT HEAT FLOW DUE TO TECTONIC PROCESSES IN THE DEEP GEOTHERMAL REGIME BETWEEN THE NORD EIFEL-VENN MASSIF, BRABANT MASSIF AND ADJACENT GRABEN (CENTRAL EUROPE) IS USED AS BOUNDARY

CONDITION FOR A 3D CONVECTIVE NUMERICAL MODEL.

Jan Szewczyk and Danuta Gientka

VERTICAL VARIATION OF HEAT FLO DENSITY IN POLAND – PALEOCLIMATE OR ADVECTION?

A.Sh.Mukhtarov, S.A.Aliyev, R.J.Bagirli, V.N.Lisyakov and K.V.Kerimov

THE NEW TECHNIQUE FOR MARINE GEOTHERMAL INVESTIGATIONS

Thomas Fuchs

PRACTICAL APPLICATION OF CRUSTAL MODELS IN BASIN MODELING

Thursday, June 8, 2006 (Morning session)

Session 3 Geothermics of Climate Change (oral presentations)

Chairpersons: J.Majorowicz, Gonzales-Rouco and M.Verdoya

David S. Chapman and Robert N. Harris

GEOTHERMICS OF CLIMATE CHANGE: PAST ACHIEVEMENTS AND NEW CHALLENGES

J. F. Gonzalez-Rouco, H. Beltrami, E. Zorita, M. B. Stevens and H. von Storch

SIMULATION AND INVERSION OF BOREHOLE TEMPERATURE: A METHOD ASSESSMENT USING ECHO-G SIMULATIONS OF THE LAST MILLENNIUM

Jacek Majorowicz , Walter Skinner and Jan Safanda

SPATIAL AND TEMPORAL VARIABILITY IN THE ONSET OF THE RECENT WARMING ACROSS NORTH AMERICA CORRESPONDING TO THE LITTLE ICE AGE TERMINATION AS INFERRED FROM TEMPERATURE LOGS

Christian Chouinard and Jean-Claude Mareschal

COMPARISON BETWEEN DIFFERENT APPROACHES TO INVERSION OF BOREHOLE-TEMPERATURE DEPTH PROFILES: APPLICATION TO CANADIAN DATA SETS.

Jason E. Smerdon

SIMULATION OF SUBSURFACE SENSIBLE HEAT TRANSPORT: SENSITIVITY TO LOWER-BOUNDARY CONDITIONS

Dmitry Demezhko, Vladimir Outkin, Albert Duchkov, Veniamin Balobaev and David Ryvkin

SPATIAL DISTRIBUTION OF PLEISTOCENE/HOLOCENE WARMING AMPLITUDES IN NORTHERN EURASIA INFERRED FROM GEOTHERMAL DATA

I.V. Golovanova, D.Yu. Demezhko and R.Yu.Valiyeva

ESTIMATION OF THE PALAEOCLIMATIC EFFECT ON MEASURED HEAT FLOW DENSITY DATA IN THE SOUTHERN URALS.

Thursday, June 8, 2006 (Afternoon session)

Sessions 2 and 4 (poster presentation)

Chairpersons: H.Wilhelm, A.Correia and A.Foerster

Vladimir Cermak, Jan Safanda and Luisa Bodri

PRECISE TEMPERATURE MONITORING IN BOREHOLES: EVIDENCE FOR OSCILLATORY CONVECTION?

S.Mayr, H.Burkhardt H., Yu.Popov, H.Wilhelm

ESTIMATION OF HYDRAULIC PERMEABILITY CONSIDERING THE MICRO MORPHOLOGY OF ROCKS OF THE BOREHOLE YAX-1 (IMPACT CRATER CHICXULUB)

L.V. Eppelbaum and I. M. Kutasov

DETERMINATION OF FORMATION TEMPERATURES FROM TEMPERATURE LOGS IN DEEP BOREHOLES: COMPARISON OF THREE METHODS

I. M. Kutasov and L.V. Eppelbaum

TEMPERATURE WELL TESTING - UTILIZATION OF THE SLIDER'S METHOD

Roland Wagner, Michael Kohn, Christoph Clauser

REACTIVE TRANSPORT SIMULATION OF CORE FLOODING EXPERIMENTS UNDER IN-SITU RESERVOIR CONDITIONS OF TEMPERATURE AND PRESSURE

Alan M. Jessop

MODELS OF THERMAL CONDUCTIVITY OF MULTI-CRYSTALLINE ROCKS

Yu.Popov

EXPERIMENTAL DATA ON VERTICAL VARIATIONS OF HEAT FLOW DENSITY

Pasquale Vincenzo, Chiozzi Paolo, Gola Gianluca, Zunino Andrea

THERMAL EFFECTS OF GROUNDWATER FLOW IN DEEP SEDIMENTARY AQUIFERS

Massimo Verdoya and Francesco Robbiano

TEMPERATURE LOGS FOR THE ESTIMATION OF GROUNDWATER FLOW OF A GEOTHERMAL RESERVOIR

D. Mottaghy, I. Kukkonen and V. Rath

MODELING HEAT TRANSPORT AND FLUID FLOW IN PERIGLACIAL AREAS

Bruno Della Vedova, Claudio Vecellio, Stefano Bellani and Umberta Tinivella

THERMAL MODELLING OF THE LARDERELLO GEOTHERMAL FIELD (TUSCANY, ITALY)

Alexandrino, C.H. and Hamza, V.M.

OCCURRENCE OF THERMALLY ANOMALOUS BELTS WITHIN THE SÃO FRANCISCO CRATON

Jan Henniges, Ernst Huenges, and Hans Burkhardt

TEMPERATURE LOGGING AT MALLIK: THERMAL PROPERTIES OF GAS-HYDRATE-BEARING SEDIMENTS AND EFFECTS OF PHASE TRANSITIONS ON THE TRANSPORT OF HEAT

Marta Wróblewska, Jacek Majorowicz, Marek Narkiewicz, Piotr Krzywiec, Katarzyna Sobieñ, Grzegorz Wróbel, Jan Safanda, Vladimir Cermak

NEW TEMPERATURE – DEPTH DATA FROM DEEP WELL TORUŃ-1 – AN INDICATION OF A PALEOCLIMATIC EFFECT

A.Miyakoshi, T.Hiyashi, A.Marui and Y.Sakura

EVALUATION OF CHANGE IN GROUNDWATER AND SUBSURFACE TEMPERATURE ENVIRONMENT IN THE TOKYO LOWLAND,
JAPAN

M. Kühn, C. Clauser, K. Vosbeck, H. Stanjek, M. Back, S. Peiffer

MINERAL TRAPPING OF CO₂ IN OPERATED GEOTHERMAL AQUIFERS

Friday, June 9, 2006 (Morning session I, 9:00-10:30)

Continuation of session 3

Chairpersons: M.Yamano and, R.Schellschmidt

A.S.B.Cavalcanti and V.M.Hamza

FORWARD AND INVERSE MODELS OF TEMPERATURE VARIATIONS IN BORE HOLES IN EASTERN BRAZIL – IMPLICATIONS FOR SURFACE THERMAL PERTURBATIONS OF THE RECENT PAST IN LOW LATITUDES.

Makoto Taniguchi and Makoto Yamano

ANTHROPOGENIC EFFECTS ON SUBSURFACE TEMPERATURE IN ASIAN CITIES

Jacek Majorowicz, Jan Šafanda and Marta Wróblewska

MODELLING OF PALEOSURFACE TEMPERATURES AND HEAT FLOW FROM EQUILIBRIUM 2.9KM TEMPERATURE LOG IN WELL TORUN, POLAND

C. Demetrescu, D. Nitoiu, M. Tumanian, V. Dobrica, C. Boroneant, A. Marica and B. Lucaschi

FREQUENCY-DEPENDENT SUBSURFACE EFFECTS OF SURFACE TEMPERATURE VARIATIONS. A DISCUSSION BASED ON AIR, SOIL, AND BOREHOLE TEMPERATURE MEASUREMENTS IN ROMANIA

Marc Stieglitz and Jason E.Smerdon

SNOW-VEGETATION-GROUND INTERACTIONS IN ARCTIC TUNDRA: IMPLICATIONS FOR VEGETATION CHANGE

Morning session II (11:00-12:45)

General discussion: Heat Flow Data Base, IHFC web pages and other problems

Chairpersons: D.S.Chapman, W..D.Gosnold and H.Villinger

Friday, June 9, 2006 (Afternoon session)

Session 3, poster presentations

Chairpersons: J.Smerdon, D.Yu.Demezhko and C.Demetrescu

Michael G. Davis, Marshall G. Bartlett, David S. Chapman, Robert N. Harris

OVER A DECADE OF GROUND-AIR TEMPERATURE TRACKING AT EMIGRANT PASS OBSERVATORY, UTAH

D. Mottaghy, V. Rath

OPTIMAL REGULARIZATION FOR SMOOTH PALEOCLIMATE INVERSIONS

J. Šafanda, D. Rajver, A. Correia, P. Dideček

SUBSURFACE TEMPERATURE CHANGES OBSERVED IN THREE EUROPEAN BOREHOLE CLIMATE STATIONS

H.N.Pollack and J.E.Smerdon

LONG-PERIOD CLIMATE SIGNALS PASS THROUGH THE SURFICIAL ACTIVE LAYER OF SEASONAL PROCESSES WITH LITTLE ATTENUATION.

D. Mottaghy, C. Clauser

CHARACTERIZING THE INFLUENCE OF LATENT HEAT EFFECTS ON GST HISTORY INVERSIONS

I.V.Golovanova, R.Yu.Valiyeva.

NEW RECONSTRUCTION OF LATE PLEISTOCENE – HOLOCENE CLIMATIC CHANGES FROM DEEP BOREHOLE GEOTHERMAL DATA IN THE SOUTH URALS.

A.Mukhtarov, V.Cermak and J.Safanda

PALEOCLIMATE CHANGE INFERRED FROM BOREHOLE TEMPERATURE: AN EXAMPLE FROM AZERBAIJAN.

P. Dideček, J. Šafanda, M. Krešl, V. Ěermák

GROUND SURFACE TEMPERATURE MONITORING UNDER DIFFERENT TYPES OF SURFACES – THREE YEARS OF OBSERVATIONS