

## **Appendix 1**

**Memorandum of Understanding**  
between the  
**Government of the Republic of Indonesia**  
and the  
**Government of the United States of America**  
on  
**General Cooperation in Science and  
Technology**  
for  
**Natural Hazard Assessment, Analysis,  
Warning, Preparedness, and Mitigation**

**Preamble**

The Government of the Republic of Indonesia (Indonesia), and the Government of the United States of America (United States) hereinafter referred to as the "Parties":

**Recognize** the importance of scientific and technical cooperation to understand, observe, and monitor climate, oceanography, meteorology, hydrology, seismology, volcanology, coastal zone changes, and the natural hazards associated with these disciplines;

**Recognize** the importance of promoting a closer working relationship to address environmental and social issues of common concern that are associated with climate, oceanography, meteorology, hydrology, seismology, volcanology, and coastal zone changes;

**Recognize** that to reduce loss of life, economic disruption, destruction of communities, and damage to the environment from natural hazards and disasters, end-to-end multi-hazard warning and mitigation systems must address the technology, structure, and the culture of assessment, warning, communication, preparedness, mitigation, and community resilience;

**Understand** that such cooperation has mutual benefits for both countries in the conduct of scientific and technical investigation and development and discharge of operational responsibilities, and can benefit the international community;

**Note** that both Parties are members of the Intergovernmental Oceanographic Commission (IOC), the World Meteorological Organization (WMO), and the United Nations Educational, Scientific, and Cultural Organization (UNESCO) with common interests in climate, oceanography, meteorology, hydrology, seismology, volcanology, and coastal zone management and the natural hazards associated with these disciplines; and

**Note** that the Parties have made mutual commitments to support development of the Indian Ocean Tsunami Warning and Mitigation System (IOTWS) and the activities of the Global Earth Observation System of Systems (GEOSS) in a manner that builds on and strengthens the existing global observational and multi-hazard warning systems, especially



the Indian Ocean Tsunami Warning and Mitigation System.

**Therefore**, pursuant to the prevailing laws and regulations in their respective countries, the Parties have reached an understanding as follows:

**I. Purpose of Memorandum**

- 1) The purpose of this Memorandum of Understanding (MOU) is to facilitate the Parties' coordination of activities in climate, oceanography, meteorology, hydrology, geology, including seismology and volcanology, coastal zone changes, and the natural hazards associated with these disciplines; and end-to-end multi-hazard warning systems. This MOU will facilitate exchange of scientific resources, personnel, and technical knowledge for mutual benefit that will support the purposes of this MOU for the Parties.
- 2) The Parties specifically acknowledge that this MOU does not constitute an obligation of funds. Nothing in this MOU shall be construed as superseding or interfering in any way with other agreements or contracts entered into between the Parties, or any component thereof, either prior to or subsequent to the signing of this MOU.
- 3) This MOU and its Implementing Arrangements (see Section IV) will support the Parties' efforts to: understand, observe, monitor, analyze, and predict multi-hazards processes and multi-hazard events; improve multi-hazard early warning systems; promote preparedness, mitigation, and community resilience to reduce the impact of multi-hazard events on lives, economies, communities, and the environment; support regional efforts to detect, analyze, and warn of multi-hazard events, including tsunamis; and enhance the GEOSS. Other cooperation cooperative efforts of mutual interest to the Parties related to climate, oceanography, meteorology, hydrology, geology, including seismology and , volcanology, coastal zone changes, and the natural hazards associated with these disciplines may be undertaken pursuant to the MOU.

## II. Scope of Cooperative Activities

Cooperative activities are specific projects undertaken by the Parties. Activities may include the following:

- 1) Scientific investigation and research that improves the understanding and analysis of climate, oceanography, meteorology, hydrology, geology, including seismology, and volcanology, coastal zone changes, and hazards associated with these disciplines, including observations and monitoring and support for observational and monitoring networks;
- 2) Activities that promote climate analysis and forecasts;
- 3) Activities that support meteorological analysis and forecasts;
- 4) Activities that advance and sustain multi-hazard detection, analysis, warning, preparedness, and mitigation systems that save lives and reduce impacts from multi-hazards events, including tsunamis, on societies and natural systems;
- 5) Activities that support the improvement of hydrological forecasts and services such as flood forecasting and warning systems development;
- 6) Activities to advance seismic event analysis;
- 7) Activities to advance monitoring, analysis and understanding of crustal deformation and volcanic eruptions and hazards;
- 8) Activities to promote community resilience to natural hazards, minimize impacts from natural disasters, and accelerate post-disaster recovery;
- 9) Studies and activities that support operational data collection, data sharing, compilation, and processing;
- 10) Activities that allow the collaborative and mutual exchange of scientific and technical expertise for the enhancement of mutual project objectives;

- 11) Activities that support one or more international objectives as identified in international fora in which the Parties participate that are consistent with the purposes of this MOU; and,
- 12) Other activities that support and advance the purposes of this MOU as agreed by the Parties.

### III. Responsibilities of the Parties

- 1) The Parties are responsible for coordinating and engaging with specific organizational entities in their own countries, as appropriate and necessary, for the completion of the tasks designated pursuant to this MOU.
- 2) Each Party is to provide staff, facilities, and other support necessary for implementation of projects as mutually determined by the Parties. Such support will be subject to the availability of personnel and appropriated funds and will be in accordance with the laws and regulations of the contributing Party's country.
- 3) Each Party shall facilitate, in accordance with its laws and regulations, entry into and exit from its territory of appropriate personnel, scientific specimens and equipment of the other Party, including field survey parties, engaged in or used in projects and programs, including maritime research cruises, under this MOU.
- 4) Exemption and relief from taxes, including value-added taxes and customs duties, in relation to the implementation of a project pursuant to this MOU will be provided in terms set forth in relevant implementing arrangements, consistent with the laws and regulations of both countries.
- 5) Funding and other assistance from the United States to Indonesia under this MOU may be provided to Indonesia's government agencies directly, or to third parties in the form of contracts, grants, cooperative agreements, and other mechanisms. Such third parties may include, but are not limited to, universities, commercial



entities, international and national non-governmental organizations, and international private voluntary organizations, as appropriate. The Parties will coordinate regarding the selection of any such third parties.

- 6) The Government of the Republic of Indonesia will co-finance cooperative activities under this MOU in accordance with its laws and regulations and as described in Implementing Arrangements.
- 7) Each Party, in conjunction with appropriate ministries and offices of the respective government, shall facilitate, as appropriate and in accordance with its laws, regulations and policies, prompt and efficient approval of access of persons of the other Party, participating in cooperative activities under this MOU, to its relevant geographic areas, institutions, data, materials, and individual scientists, specialists and researchers as needed to carry out those activities. Any activities conducted by persons of one Party in another Party's geographical areas shall be accompanied by the relevant officials of the latter at the option of the Party in whose geographical areas the activities will take place.

#### **IV. Implementing Arrangements**

- 1) The Parties shall encourage and facilitate, where appropriate, the development of direct contacts and cooperation between government agencies, universities, research centers, institutions, private sector companies and other entities of the two countries.
- 2) The Government agencies and designated entities of the Parties may conclude under this MOU Implementing Arrangements as annexes under this MOU, as appropriate, in areas of climate, oceanography, meteorology, hydrology, geology, including seismology and volcanology, coastal zone changes, and the natural hazards associated with these disciplines. These Implementing Arrangements shall cover, as appropriate, topics of cooperation, procedures for transfer and use of materials, equipment and funds, and other relevant issues.



- 3) Periodic reports will be submitted to the Executive Agents (see Section V) of the Parties or their designees as specified in Implementing Arrangements. Such reports should outline future activity areas, represent proceedings of working groups, seminars or meetings, and document the progress and results of a particular project or program.
- 4) Responsibilities for the payment of costs of the cooperative activities authorized by this MOU shall be decided by mutual agreement on a case-by-case basis, consistent with the responsibilities of the Parties set forth in Section III, above, and with each Party's rules on reimbursement. Reimbursable financial arrangements, when deemed appropriate to carry out specific projects; will be described in the Implementing Arrangements agreed to under this MOU.

#### **V. Coordination of Cooperative Activities**

- 1) Each Party hereby designates an Executive Agent responsible for the coordination and facilitation of cooperative activities under this MOU:
  - For the Government of the Republic of Indonesia: The State Ministry of Research and Technology of the Republic of Indonesia Office of Assistant to the Deputy Minister for Science and Technology Needs.
  - For the Government of the United States of America: The U.S. Department of State Office of Science and Technology Cooperation.
- 2) The Executive Agents of the Parties shall discuss and review, on a regular basis, the implementation of this MOU, including matters of importance in the field of natural hazards assessment, warning, and mitigation and policy matters related to the overall science and technology relationship of the Parties.

#### **VI. Scientific and Technical Information and Dissemination of Data**

- 1) Distribution of information will be through customary channels and in accordance with the normal procedures of the Parties.

- 2) The supplier of scientific and technical information will make take appropriate measures to ensure that the best scientific information will be transferred and/or exchanged. The application or use of any information exchanged or transferred under this MOU will be the responsibility of the recipient. The supplier does not guarantee the suitability of such information for any particular application.
- 3) All operational observational data collected as a result of activities under this MOU that are part of the IOTWS, Indonesian Tsunami Early Warning System, or other natural hazard event detection, analysis, warning, and warning dissemination system will be available openly and freely in real time through the WMO Global Telecommunications System (GTS), the Global Seismic Network (GSN), or other dissemination systems as agreed to by the Parties. Distribution and dissemination of such data will be made in accordance with standards and protocols adopted by the IOC's Intergovernmental Coordination Group for the IOTWS, as appropriate.

#### **VII. Third Parties' Participation**

- 1) The Parties may, by mutual consent, request the participation of third parties in implementing and financing programs and projects carried out under this MOU.
- 2) The Parties shall support the participation of scientific and research organizations, enterprises, and other entities concerned from the two countries in international scientific and technological activities.
- 3) Scientists, experts, and institutions from third party countries may be invited to participate in the activities conducted under this MOU upon the mutual consent of the Parties.

#### **VIII. Intellectual Property**

- 1) The treatment of intellectual property created or furnished in the course of cooperative activities under this MOU is provided for in Annex I.

2) The treatment of security arrangements for sensitive information or equipment transferred under this MOU is provided for in Annex II, which shall apply to all activities conducted under the auspices of the MOU unless agreed otherwise by the Parties in writing.

3) These Annexes I and II shall be an integral part of this MOU.

#### **IX. Non-Exclusivity**

Nothing in this MOU shall restrict the Parties from engaging in similar or related agreements and activities with entities not part of this MOU.

#### **X. Temporarily Suspension**

Each Party reserves the right for reasons of national security, public order or public health to suspend temporarily either in whole or in part the implementation of this MOU. Such suspension shall take effect immediately after notification has been given to the other Party through diplomatic channels.

#### **XI. Limitation of Personnel**

- 1) Without any prejudices to any applicable privileges and immunities, all persons engaged in activities related to this MOU shall respect political independence, sovereignty, and territorial integrity of the host country, shall have a duty not to interfere in the internal affairs of the host country, and will avoid any activities inconsistent with the purposes and objectives of this MOU;
- 2) Persons who enjoy privileges and immunities provided by international agreement or by the relevant laws and regulations of the host country have the duty to respect the laws and regulations of the host country.

#### **XII. Settlement of Disputes**

Any disputes regarding interpretation or implementation of this MOU or its associated Implementing Arrangements will be resolved through consultations and negotiations by the



Parties amicably and in a spirit of cooperation.


**XIII. Entry into Force, Duration, Amendment and Termination**

- 1) This MOU shall enter into force on the date on upon signature by both Parties and shall remain in force for a period of five (5) years. It may be amended, or This MOU may be extended for further five-year periods, by written agreement of the Parties.
- 2) This MOU may be amended by mutual written agreement of the Parties.
- 3) This MOU may be terminated at any time by either Party upon three (3) months' written notice to the other Party.
- 4) Termination of this MOU shall not affect the implementation of any cooperative activity carried out under the MOU and not completed upon termination of the AgreementMOU, unless otherwise agreed to by the Parties.

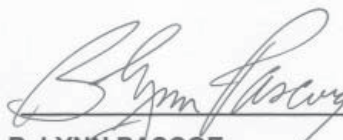
**In witness whereof**, the undersigned, being duly authorized by their respective governments, have signed this MOU.

DONE in duplicate in the English language at Jakarta on this twentieth day of November, two thousand and six.

FOR THE GOVERNMENT OF THE  
REPUBLIC OF INDONESIA:

  
\_\_\_\_\_  
**KUSMAYANTO KADIMAN**  
State Minister for Research and  
Technology

FOR THE GOVERNMENT OF THE  
UNITED STATES OF AMERICA:

  
\_\_\_\_\_  
**B. LYNN PASCOE**  
U.S. Ambassador to the Republic of  
Indonesia



**ANNEX I**  
**Intellectual Property Rights**

**I. General Obligation**

The Parties shall ensure adequate and effective protection of intellectual property created or furnished under this MOU and relevant Implementing Arrangements. Rights to such intellectual property shall be allocated as provided in this Annex.

**II. Scope**

- A. This Annex is applicable to all cooperative activities undertaken pursuant to this MOU, except as otherwise specifically agreed by the Parties or their designees.
- B. For purposes of this MOU, "intellectual property" shall mean the subject matter listed in Article 2 of the Convention Establishing the World Intellectual Property Organization, done at Stockholm, July 14, 1967, and may include other subject matter as agreed by the Parties.
- C. Each Party shall ensure, through contracts or other legal means with its own participants, if necessary, that the other Party can obtain the rights to intellectual property allocated in accordance with this Annex. This Annex does not otherwise alter or prejudice the allocation between a Party and its nationals, which shall be determined by that Party's laws and practices.
- D. Except as otherwise provided in this MOU, disputes concerning intellectual property arising under this MOU shall be resolved through discussions between the concerned participating institutions, or, if necessary, the Parties or their designees. Upon mutual agreement of the Parties, a dispute shall be submitted to an arbitral tribunal for binding arbitration in accordance with the applicable rules of international law. Unless the Parties or their designees agree otherwise in writing, the arbitration rules of United Nations Commission on International Trade Law (UNCITRAL) shall govern.

- E. Termination or expiration of this MOU shall not affect rights or obligations under this Annex.

### III. Allocation of Rights

- A. Each Party shall be entitled to a non-exclusive, irrevocable, royalty-free license in all countries to translate, reproduce, and publicly distribute scientific and technical journal articles, reports, and books directly arising from cooperation under this MOU. All publicly distributed copies of a copyrighted work prepared under this provision shall indicate the names of the authors of the work unless an author explicitly declines to be named.
- B. Rights to all forms of intellectual property, other than those rights described in paragraph III.A above, shall be allocated as follows:
1. Visiting researchers shall receive rights, awards, bonuses and royalties in accordance with the policies of the host institution.
  2. (a) Any intellectual property created by persons employed or sponsored by one Party under cooperative activities other than those covered by paragraph III.B(1) shall be owned by that Party. Intellectual property created by persons employed or sponsored by both Parties shall be jointly owned by the Parties. In addition, each creator shall be entitled to awards, bonuses and royalties in accordance with the policies of the institution employing or sponsoring that person.
  - (b) Unless otherwise agreed in an implementing or other arrangement, each Party shall have within its territory all rights to exploit or license intellectual property created in the course of the cooperative activities.
  - (c) The rights of a Party outside its territory shall be determined by mutual agreement considering the relative contributions of the Parties and their participants to the cooperative activities, the degree of commitment in obtaining legal protection and licensing of the intellectual property and such

other factors deemed appropriate.

- (d) Notwithstanding paragraphs III.B(2)(a) and (b) above, if a particular project has led to the creation of intellectual property protected by the laws of one Party but not the other, the Party whose laws provide for this type of protection shall be entitled to all rights to exploit or license intellectual property worldwide although creators of intellectual property shall nonetheless be entitled to awards, bonuses and royalties as provided in paragraph III.B(2)(a).
- (e) For each invention made under any cooperative activity, the Party employing or sponsoring the inventor(s) shall disclose the invention promptly to the other Party together with any documentation and information necessary to enable the other Party to establish any rights to which it may be entitled. Either Party may ask the other Party in writing to delay publication or public disclosure of such documentation or information for the purpose of protecting its rights in the invention. Unless otherwise agreed in writing, the delay shall not exceed a period of six months from the date of disclosure by the inventing Party to the other Party.

#### **IV. Business Confidential Information**

In the event that information identified in a timely fashion as business-confidential is furnished or created under this MOU, each Party and its participants shall protect such information in accordance with applicable laws, regulations, and administrative practices. Information may be identified as "business-confidential" if a person having the information may derive an economic benefit from it or may obtain a competitive advantage over those who do not have it, and the information is not generally known or publicly available from other sources, and the owner has not previously made the information available without imposing in a timely manner an obligation to keep it confidential.



**ANNEX II****Security Obligations****I. Protection of Sensitive Technology**

Both Parties agree that no information or equipment requiring protection in the interest of national defense or foreign relations and classified in accordance with its applicable national laws and regulations shall be provided under this MOU. In the event that information or equipment which is known or believed to require such protection is identified in the course of cooperative activities pursuant to this MOU, it shall be brought immediately to the attention of the appropriate officials and the Parties shall consult to identify appropriate security measures to be agreed upon by the Parties in writing and applied to this information and equipment and shall, if appropriate, amend this MOU to incorporate such measures.

**II. Technology Transfer**

The transfer of unclassified export-controlled information or equipment between the Parties shall be in accordance with the relevant laws and regulations of each Party. If either Party deems it necessary, detailed provisions for the prevention of unauthorized transfer or retransfer of such information or equipment shall be incorporated into the contracts or Implementing Arrangements. Export controlled information shall be marked to identify it as export controlled and identify any restrictions on further use or transfer.





## Appendix 2

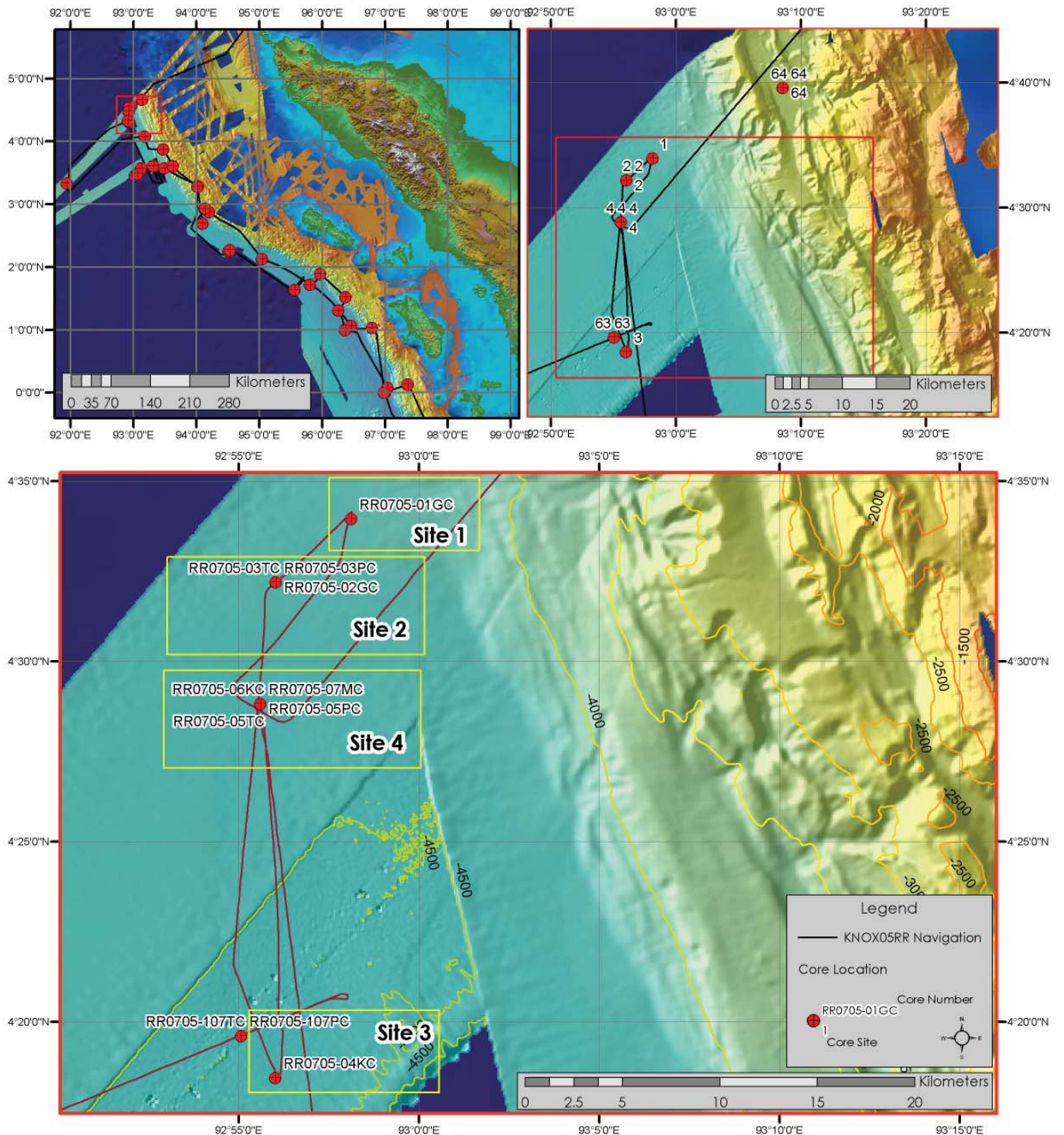
### Site Maps

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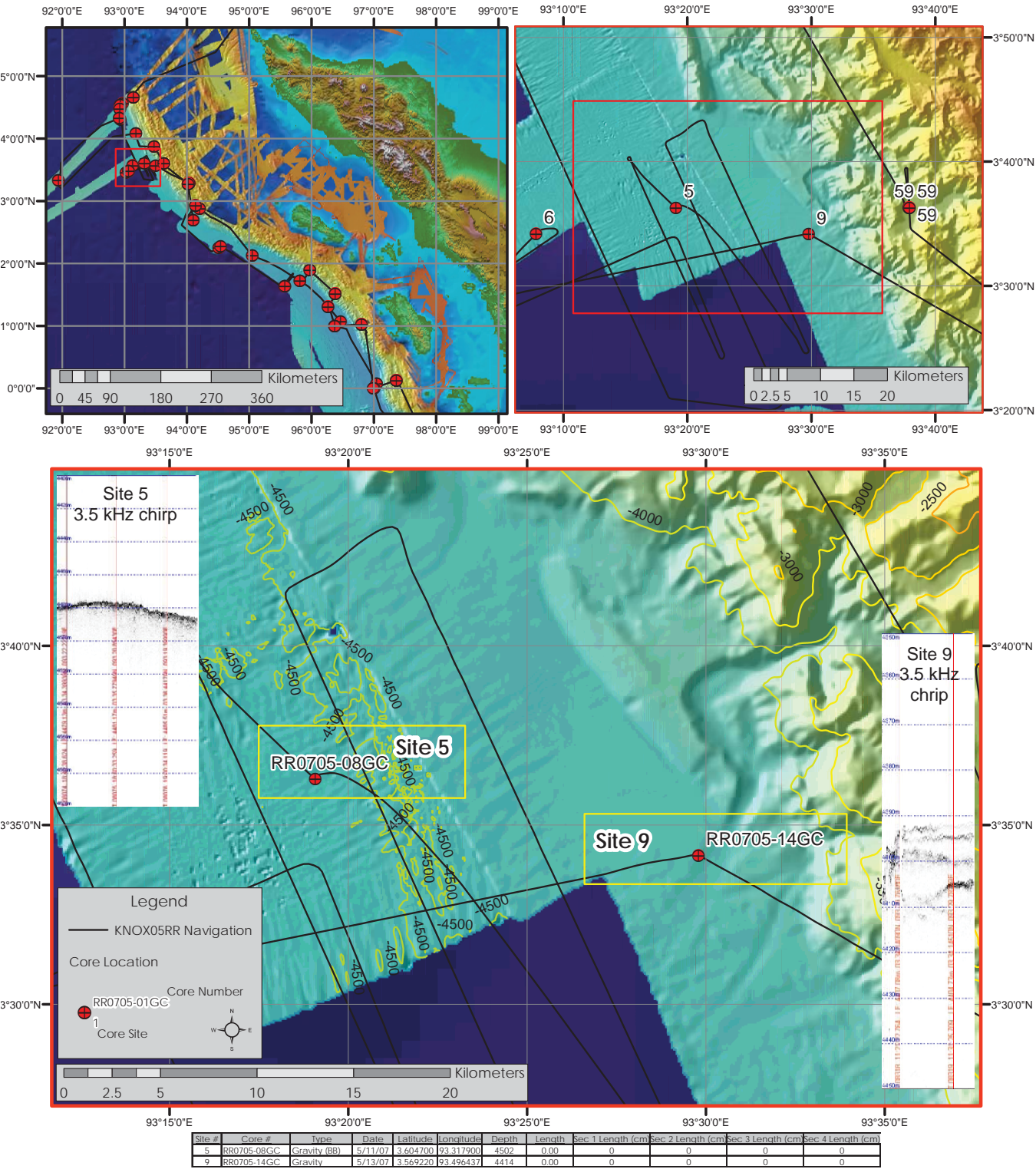
## KNOX05RR CORE SITES 1 - 4



Site #	Core #	Type	Date	Latitude	Longitude	Depth (m)	Length (m)	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
1	RR0705-01GC	Gravity	5/8/07	4.565840	92.96874	4434	0.18	18	0	0	0
2	RR0705-02GC	Gravity	5/9/07	4.536504	92.93394	4483	0.00	0	0	0	0
2	RR0705-03TC	Trigger	5/9/07	4.536504	92.93394	4483	1.91	45	146	0	0
2	RR0705-03PC	Piston	5/9/07	4.536504	92.93394	4483	2.73	150	123	0	0
3	RR0705-04KC	Kasten	5/9/07	4.307380	92.93367	4540	0.00	0	0	0	0
4	RR0705-05TC	Trigger	5/10/07	4.480405	92.92668	4498	0.91	91	0	0	0
4	RR0705-05PC	Piston	5/10/07	4.480405	92.92668	4498	3.08	35	150	123	0
4	RR0705-06KC	Kasten	5/10/07	4.480405	92.92668	4498	0.00	0	0	0	0
4	RR0705-07MC	Multicore	5/11/07	4.480405	92.92668	4498	0.00	0	0	0	0

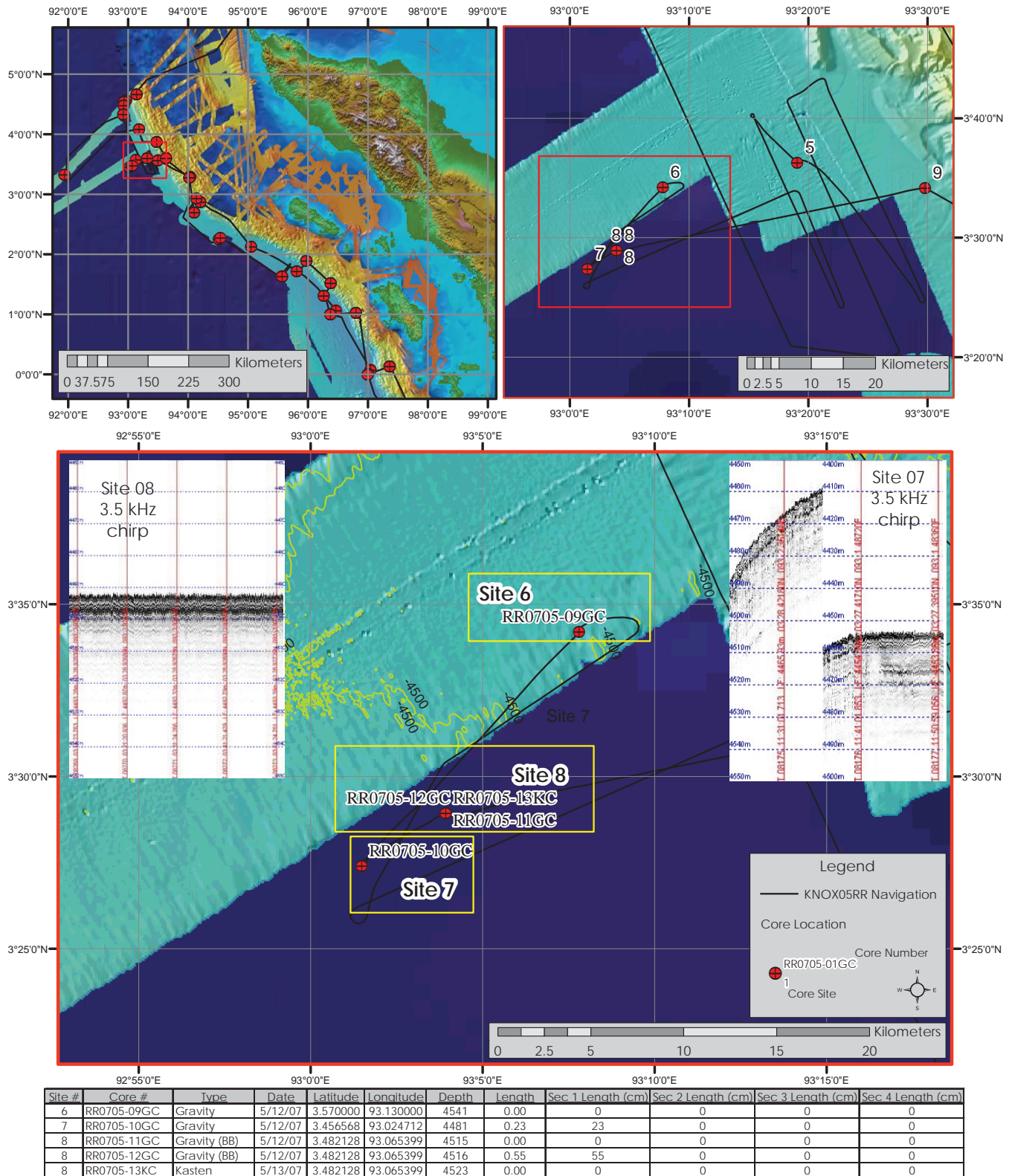


KNOX05RR CORE SITES 5 & 9

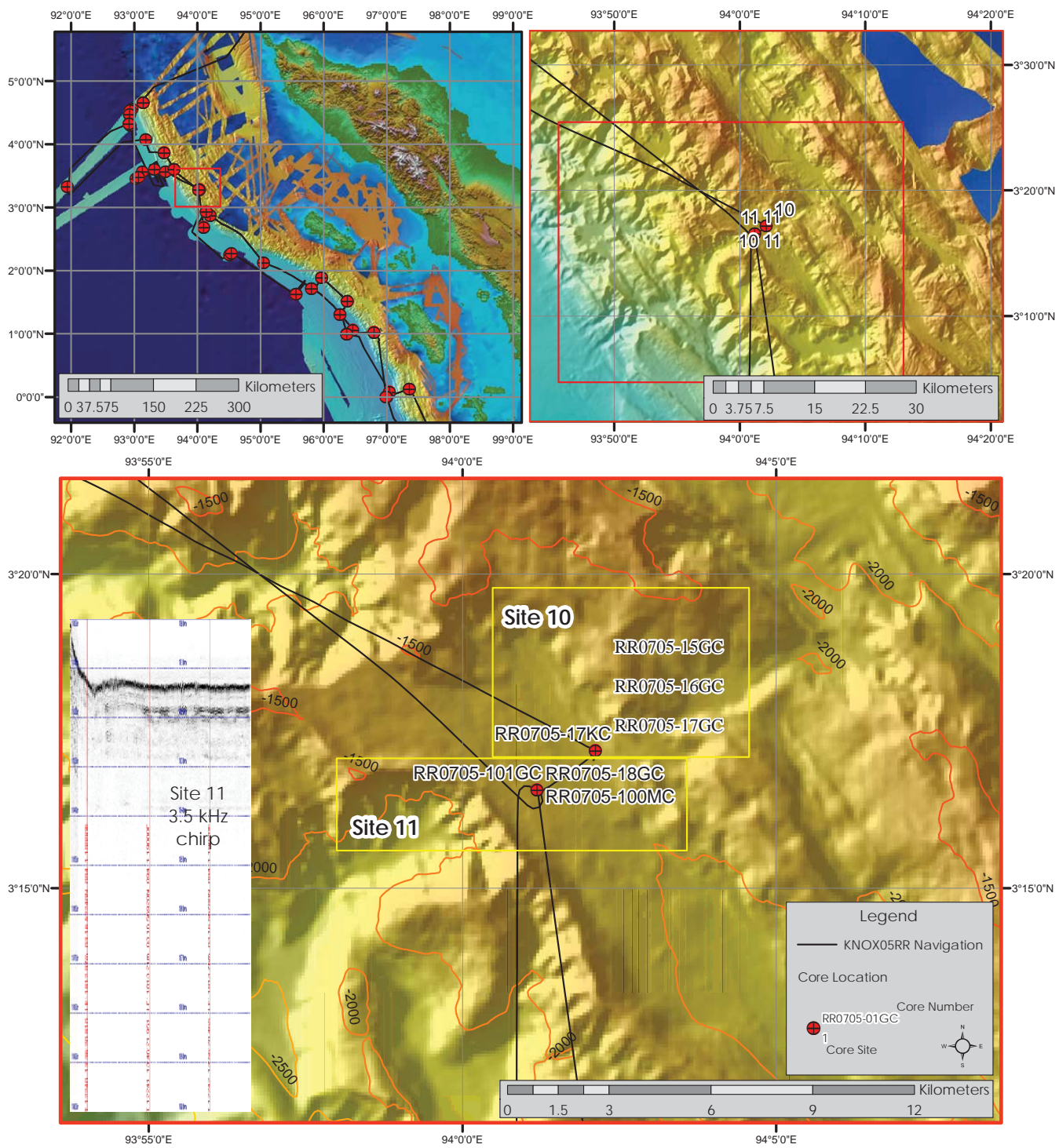




## KNOX05RR CORE SITES 6 - 8



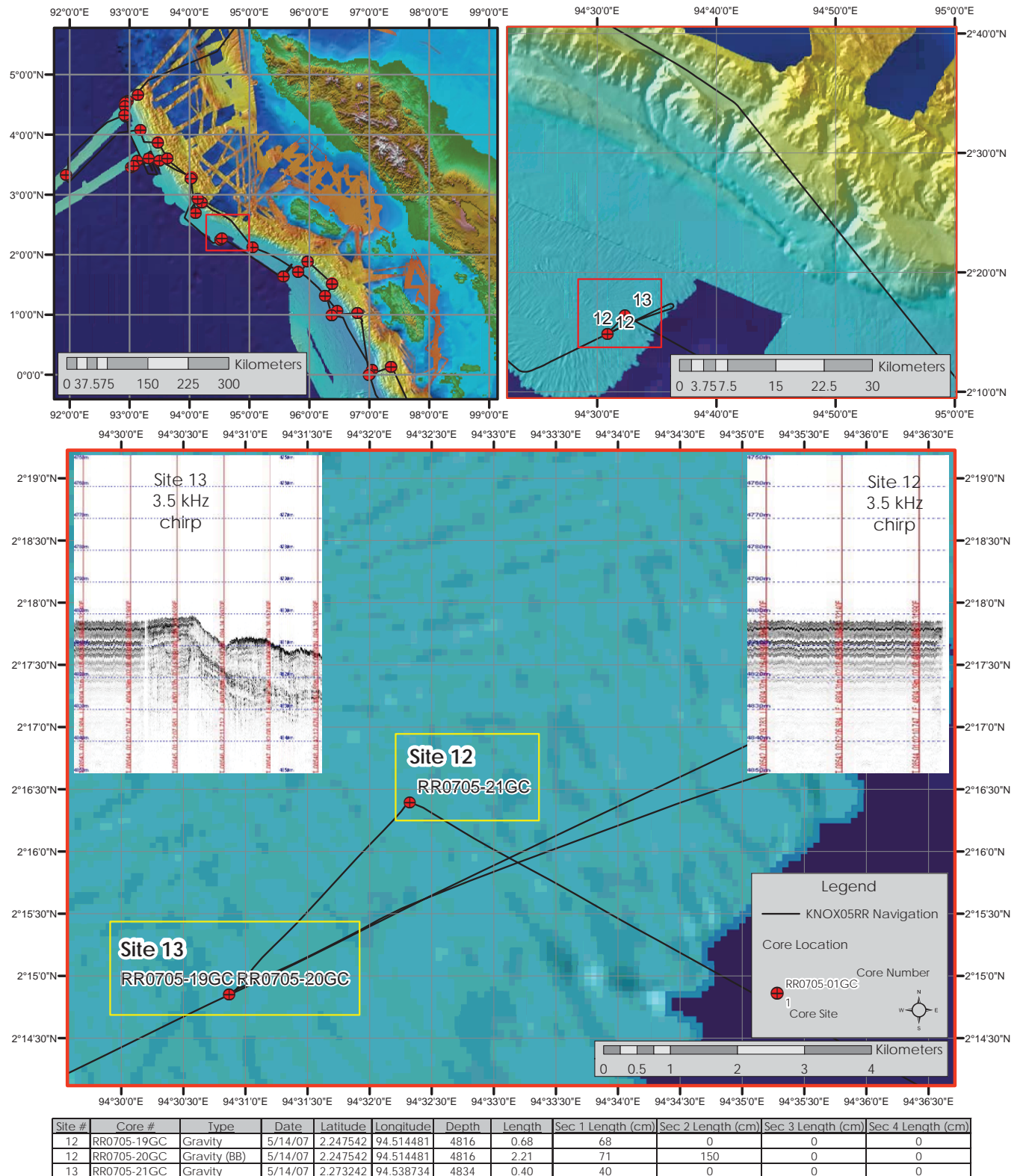
## KNOX05RR CORE SITES 10 - 11



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
10	RR0705-15GC	Gravity	5/13/07	3.286581	94.035283	1912	0.34	34	0	0	0
10	RR0705-16GC	Gravity (BB)	5/13/07	3.286581	94.035283	1911	1.95	44.5	150	0	0
10	RR0705-17KC	Kasten	5/13/07	3.286581	94.035283	1911	0.00	0	0	0	0
11	RR0705-18GC	Gravity (BB)	5/14/07	3.276122	94.019836	1820	3.14	84	80	150	0
11	RR0705-100MC	Multi	6/9/07	3.276122	94.019836	1819	0.03	3.1	0	0	0
11	RR0705-101GC	Gravity	6/9/07	3.276122	94.019836	1823	0.53	52.5	0	0	0

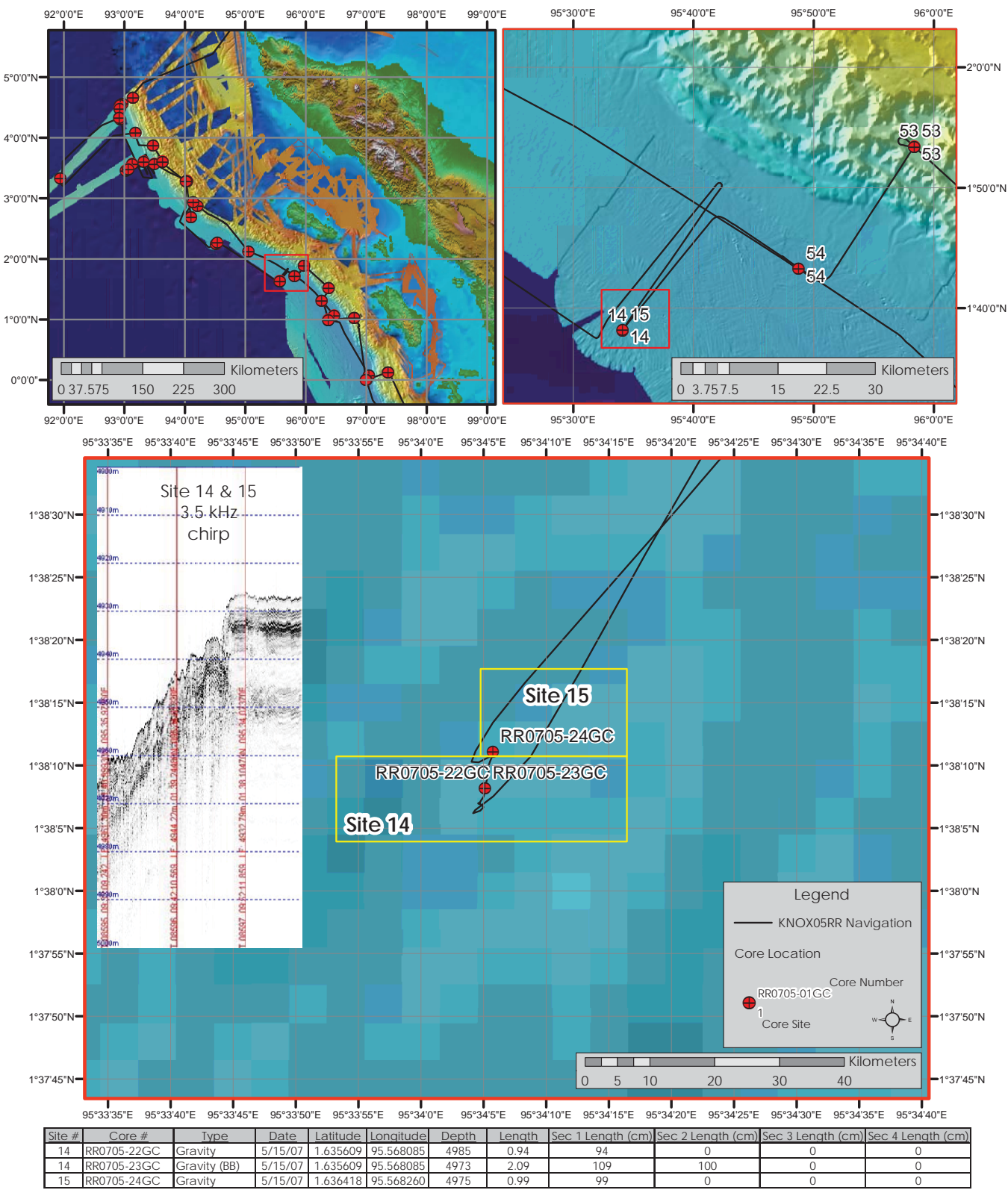


## KNOX05RR CORE SITES 12 AND 13

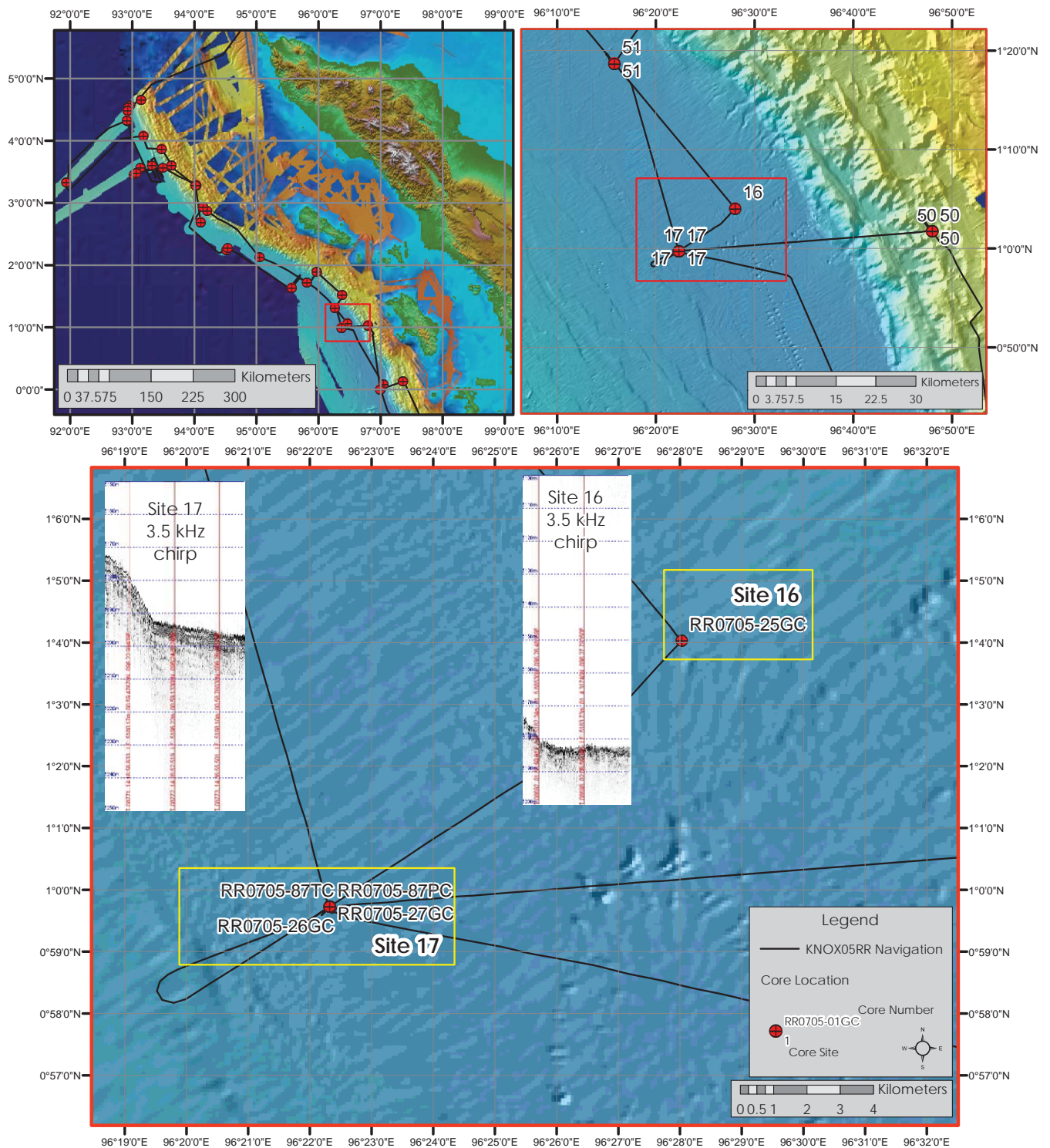




KNOX05RR CORE SITES 14 AND 15



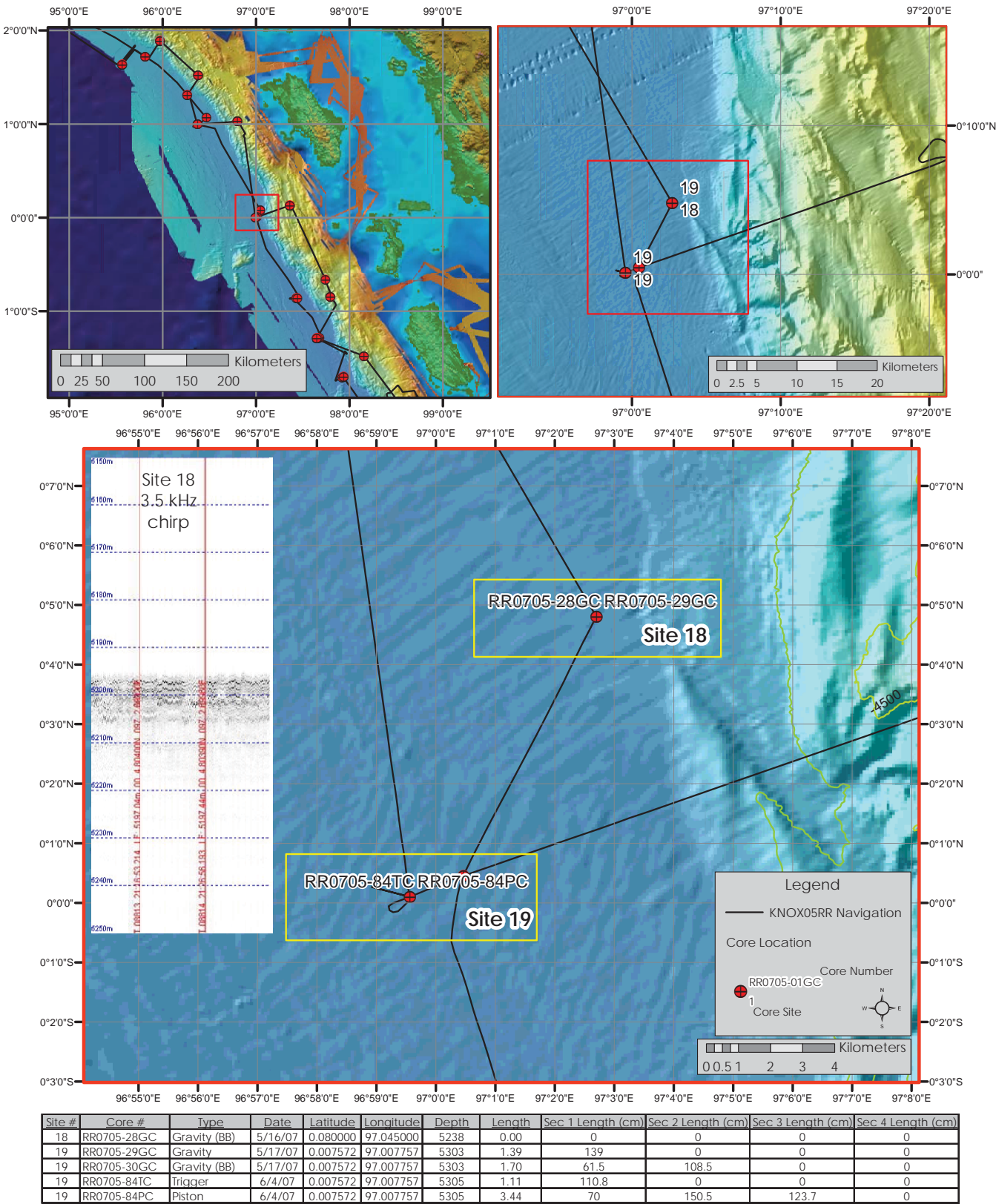
## KNOX05RR CORE SITES 16 AND 17



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
16	RR0705-25GC	Gravity	5/16/07	1.067208	96.467150	5224	0.00	0	0	0	0
17	RR0705-26GC	Gravity	5/16/07	0.995458	96.372048	5220	0.45	45	0	0	0
17	RR0705-27GC	Gravity (BB)	5/16/07	0.995458	96.372048	5214	2.32	82	150	0	0
17	RR0705-87TC	Trigger	6/5/07	0.995458	96.372048	5211	0.77	76.9	0	0	0
17	RR0705-87PC	Piston	6/5/07	0.995458	96.372048	5211	5.02	68.9	151	152.6	129.6

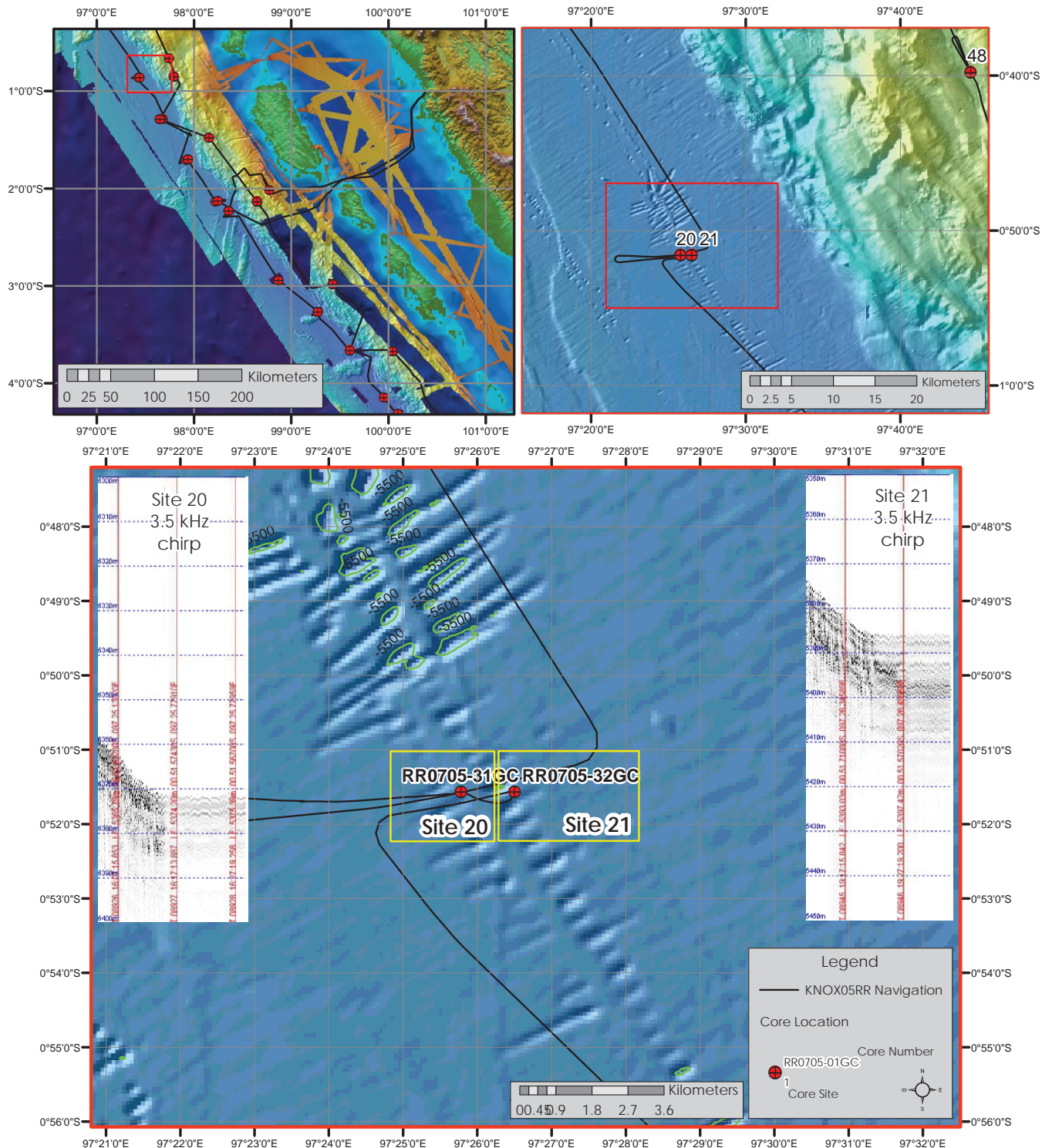


KNOX05RR CORE SITES 18 AND 19



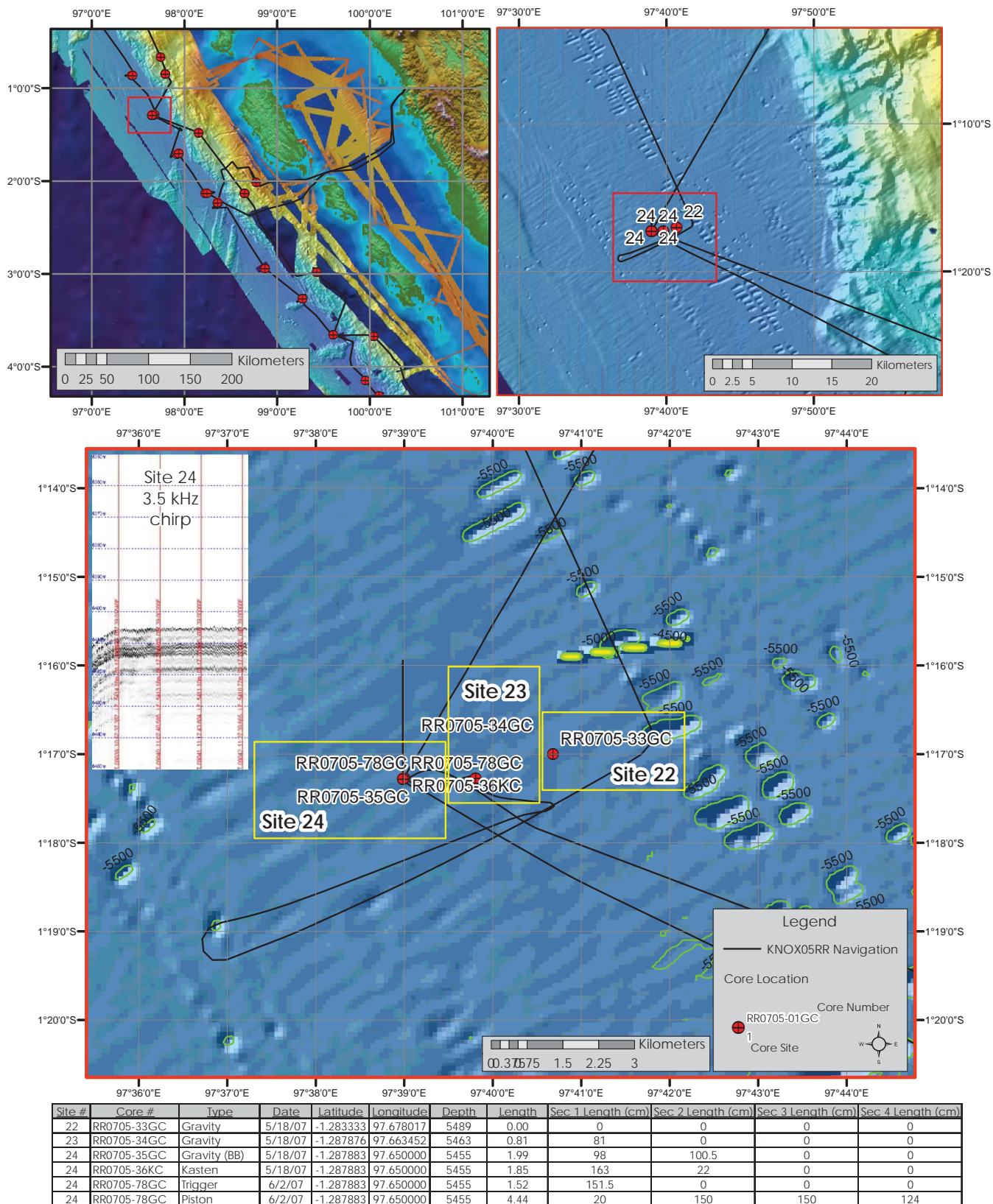


## KNOX05RR CORE SITES 20 AND 21



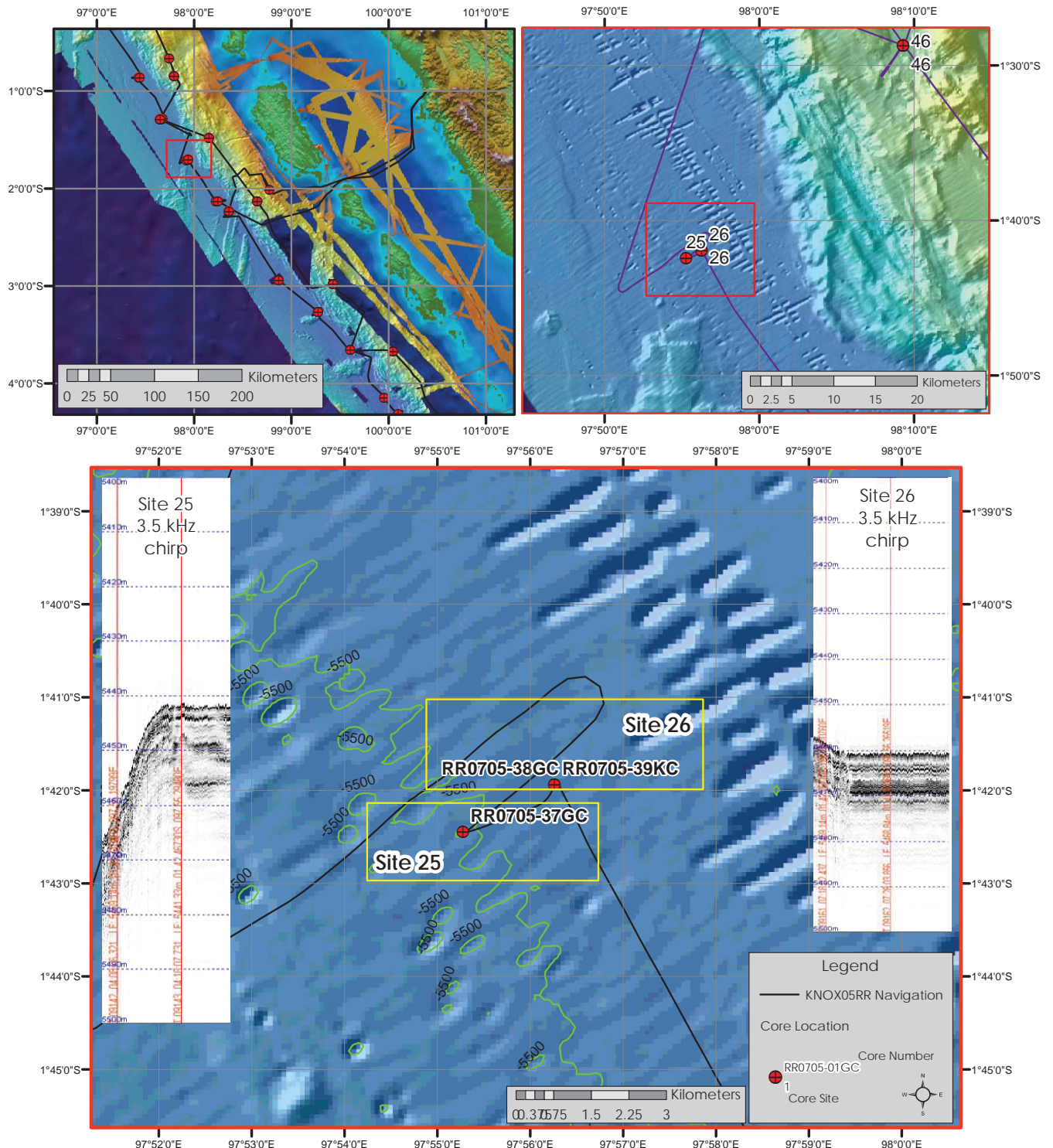
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
20	RR0705-31GC	Gravity	5/17/07	-0.859469	97.429642	5420	1.37	137	0	0	0
21	RR0705-32GC	Gravity (BB)	5/17/07	-0.859469	97.441667	5435	1.83	75.5	107	0	0

## KNOX05RR CORE SITES 22, 23, AND 24





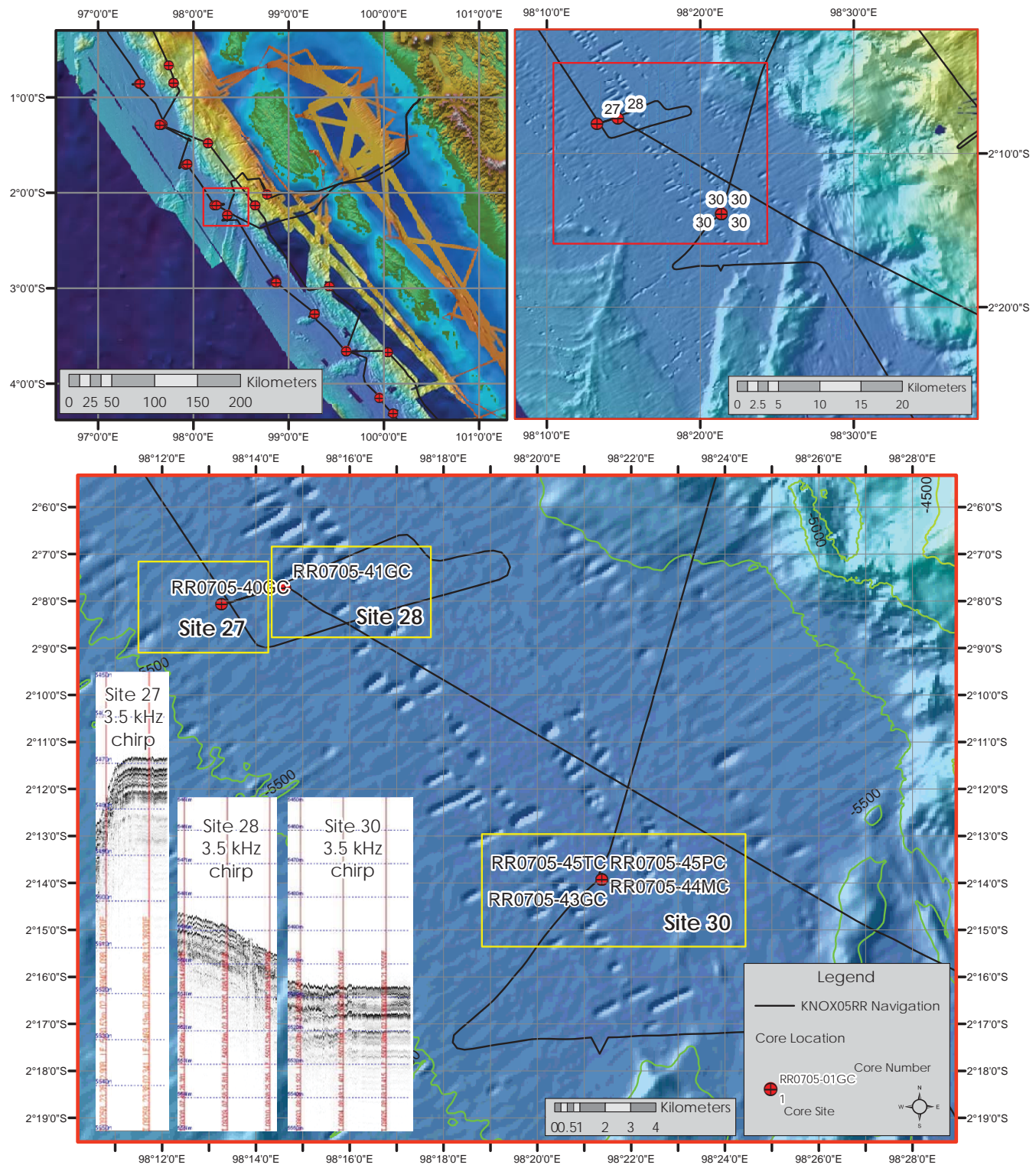
## KNOX05RR CORE SITES 25 AND 26



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
25	RR0705-37GC	Gravity	5/19/07	-1.707456	97.921224	5492	0.88	88	0	0	0
26	RR0705-38GC	Gravity (BB)	5/19/07	-1.698927	97.937670	5511	1.87	86.5	100	0	0
26	RR0705-39KC	Kasten	5/19/07	-1.698927	97.937670	5510	2.30	209	23	0	0

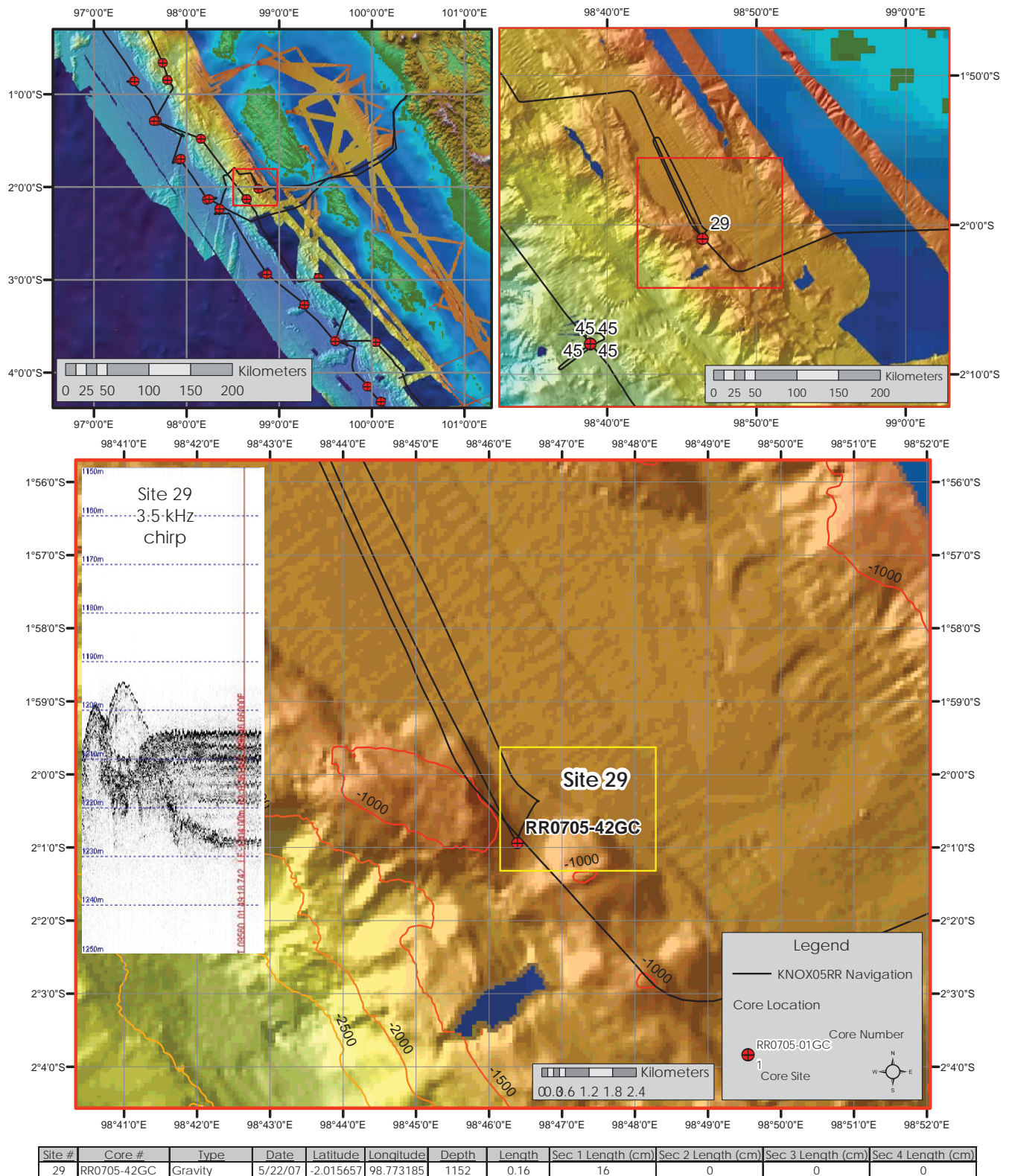


## KNOX05RR CORE SITES 27, 28, AND 30



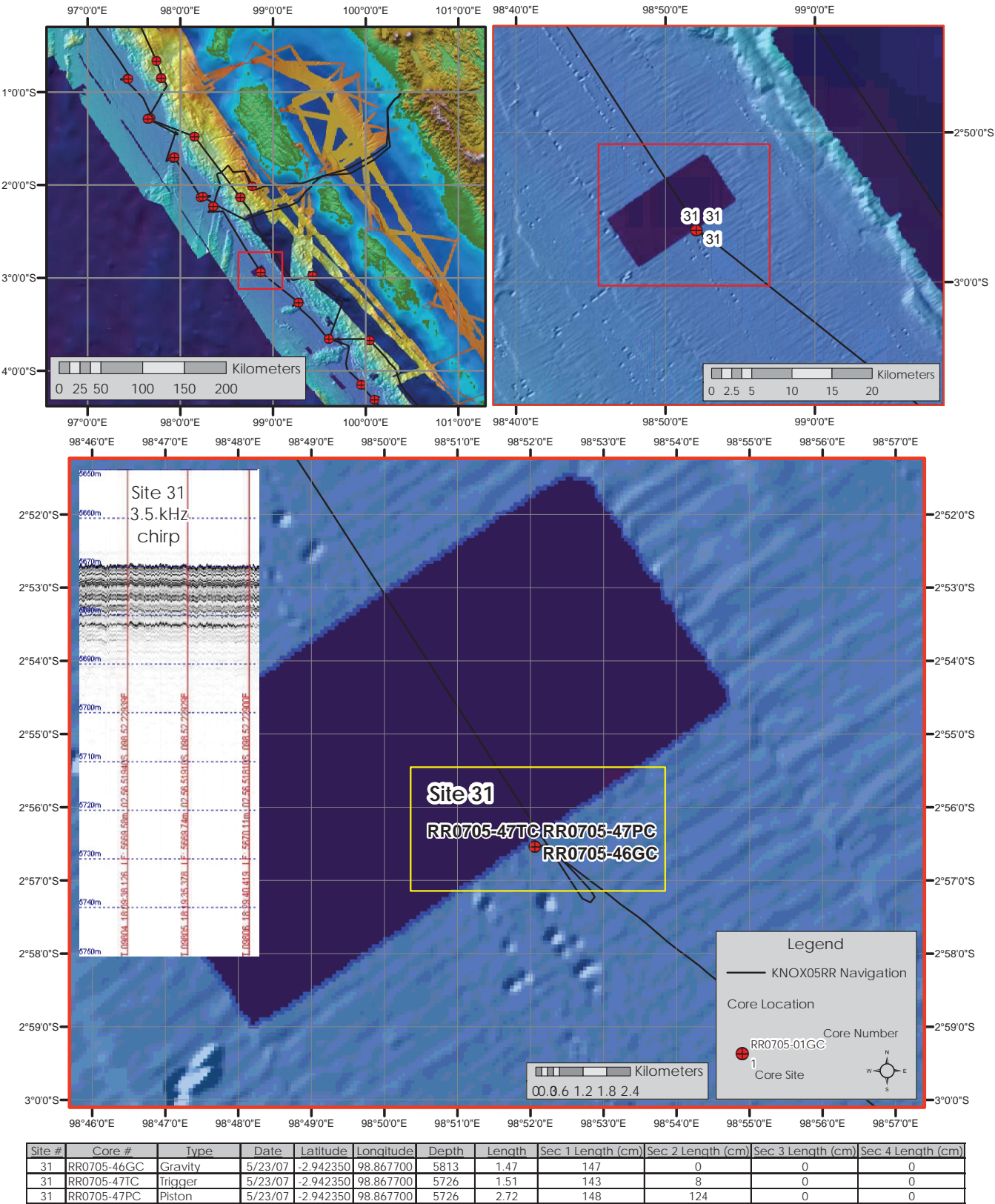
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
27	RR0705-40GC	Gravity	5/19/07	-2.134434	98.221101	5529	1.22	122	0	0	0
28	RR0705-41GC	Gravity (BB)	5/20/07	-2.128660	98.243670	5540	1.62	100	62	0	0
30	RR0705-43GC	Gravity	5/22/07	-2.232103	98.356314	5555	0.84	84	0	0	0
30	RR0705-44MC	Multicore	5/22/07	-2.232103	98.356314	5557	0.00	2	0	0	0
30	RR0705-45TC	Trigger	5/22/07	-2.232103	98.356314	5561	1.37	136.5	0	0	0
30	RR0705-45PC	Piston	5/22/07	-2.232103	98.356314	5561	4.70	41.5	150	150	128.5

## KNOX05RR CORE SITE 29



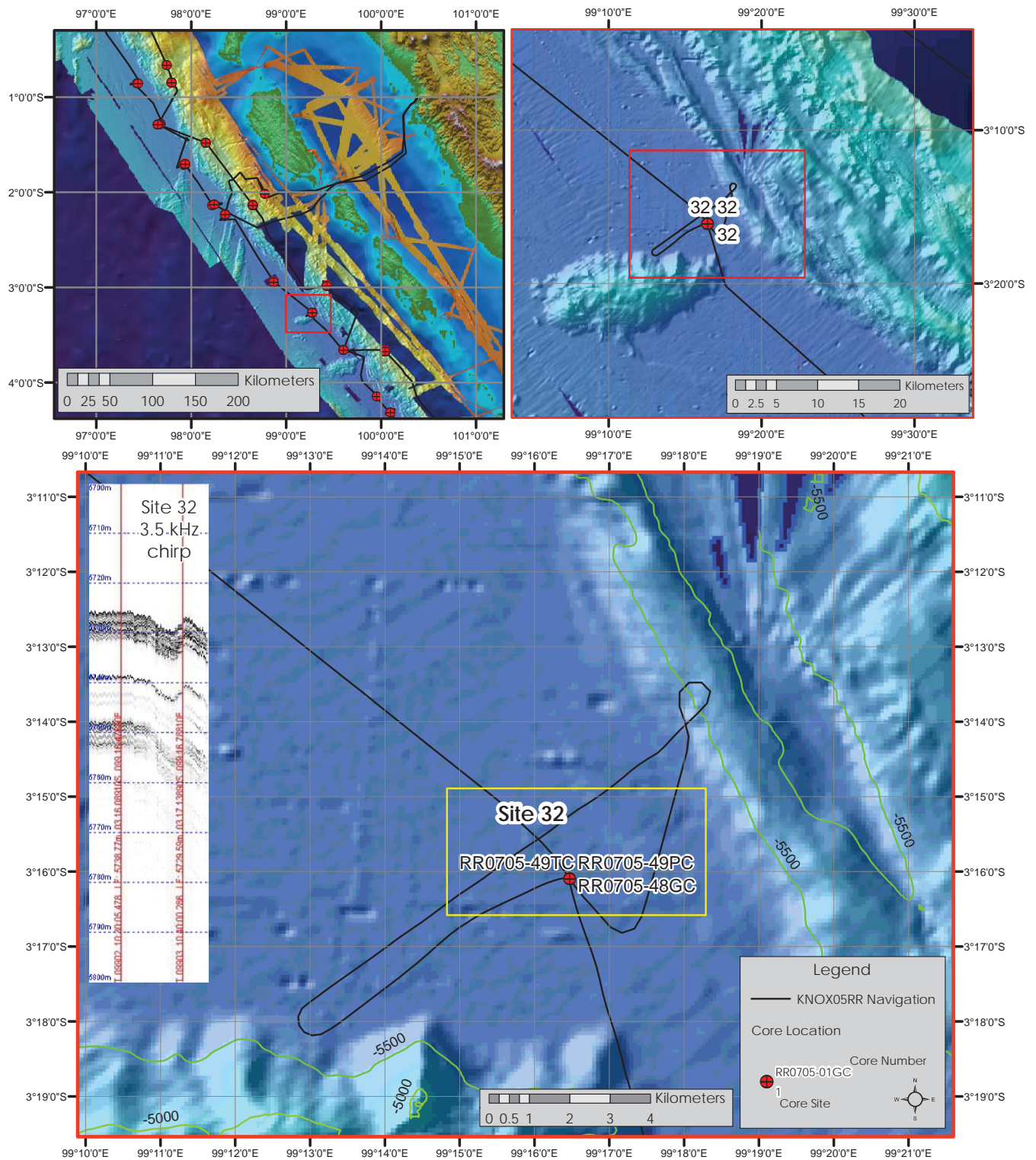


KNOX05RR CORE SITE 31



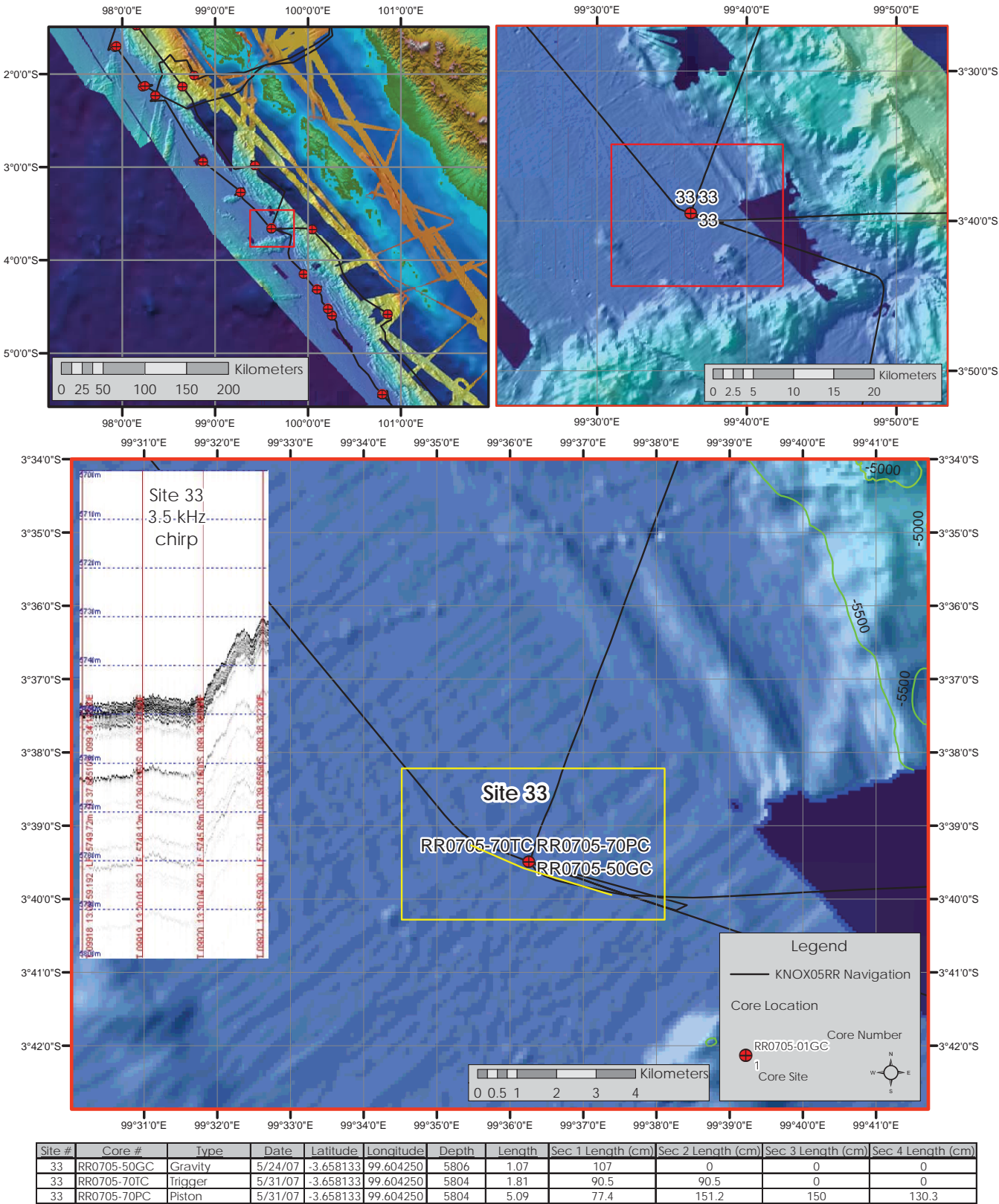


## KNOX05RR CORE SITE 32



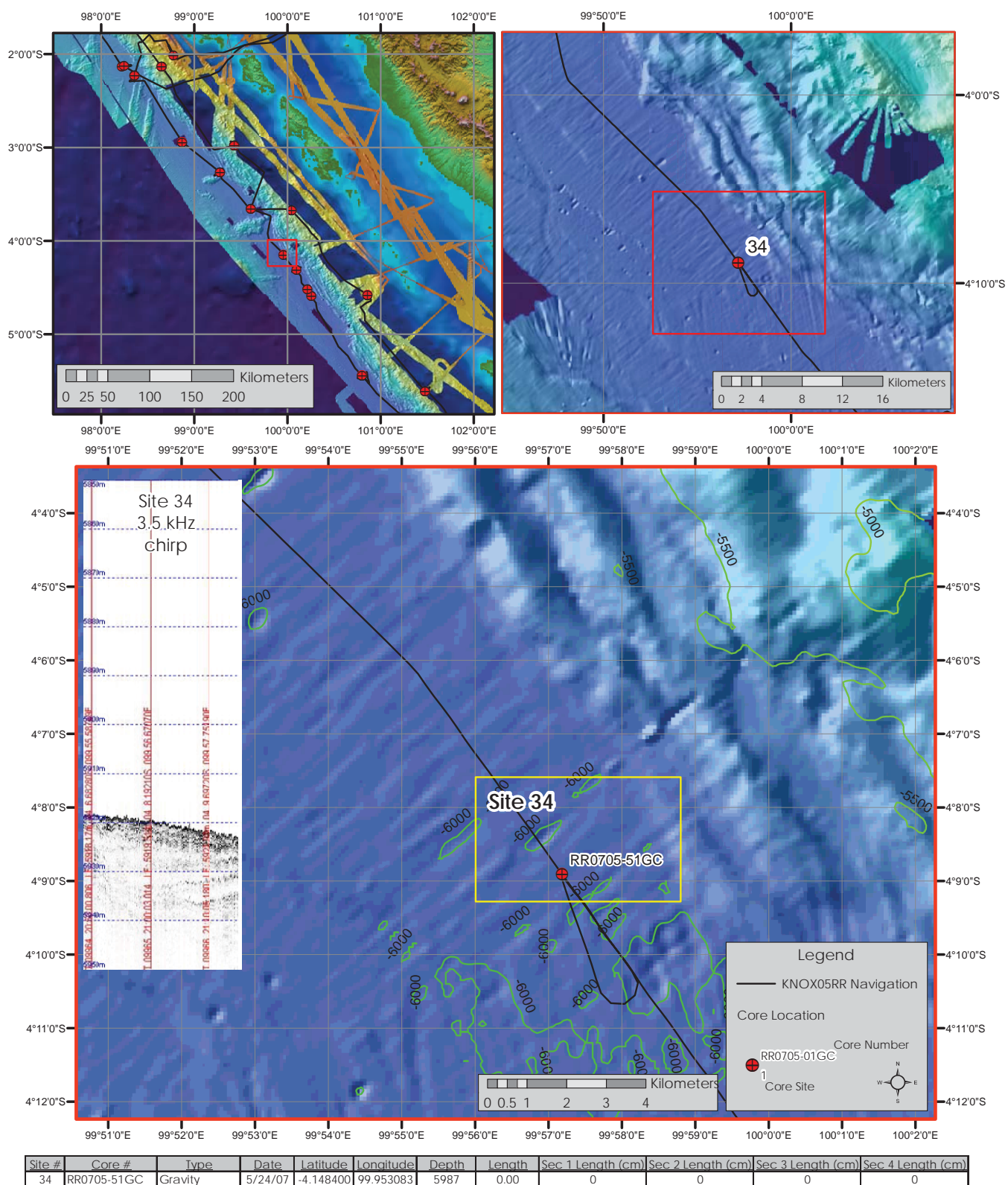
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
32	RR0705-48GC	Gravity	5/23/07	-3.268285	99.274537	5790	1.70	39	130.5	0	0
32	RR0705-49TC	Trigger	5/24/07	-3.268285	99.274537	5797	2.58	125.5	132	0	0
32	RR0705-49PC	Piston	5/24/07	-3.268285	99.274537	5797	3.97	122	150	125	0

KNOX05RR CORE SITE 33



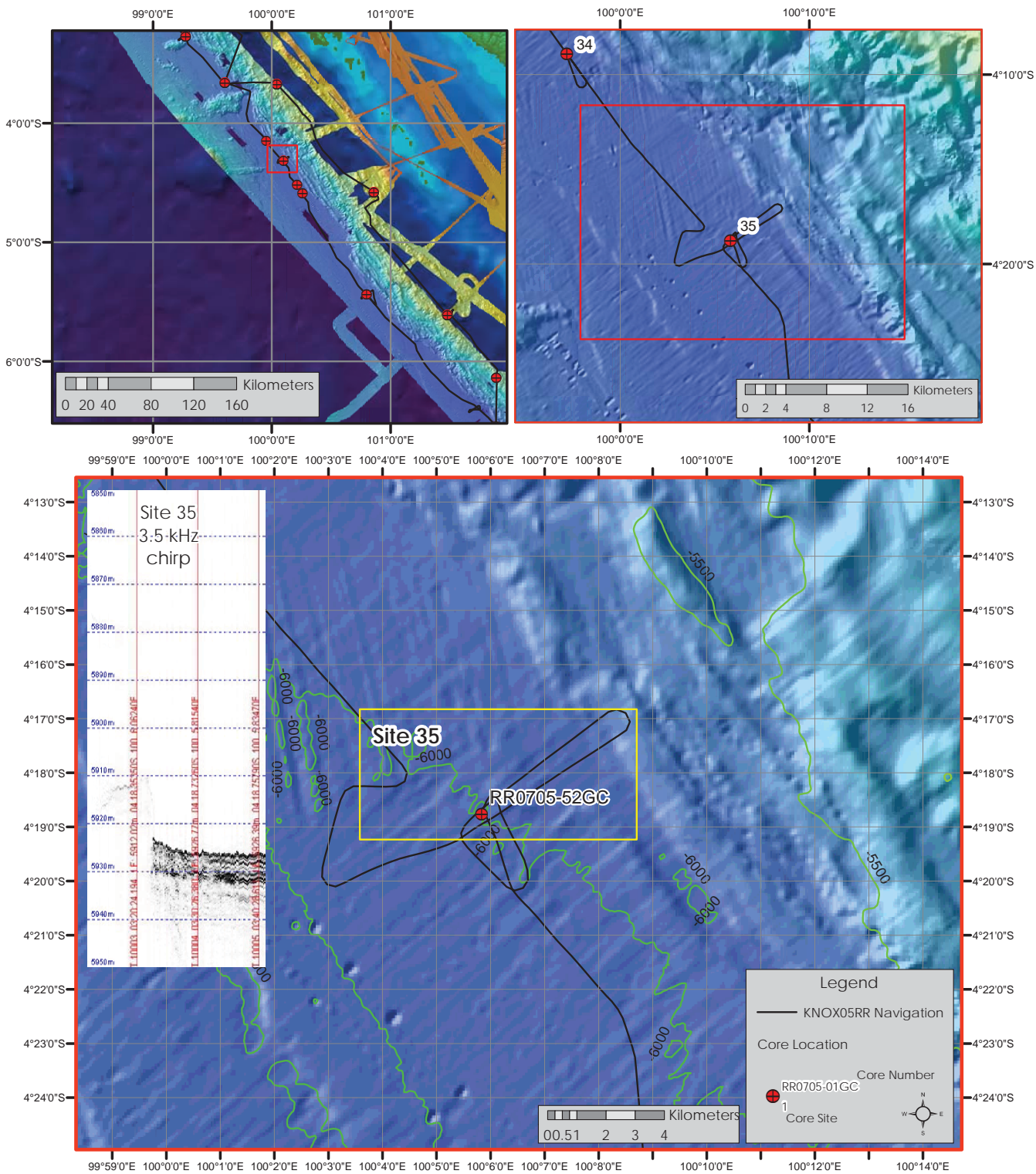


## KNOX05RR CORE SITE 34



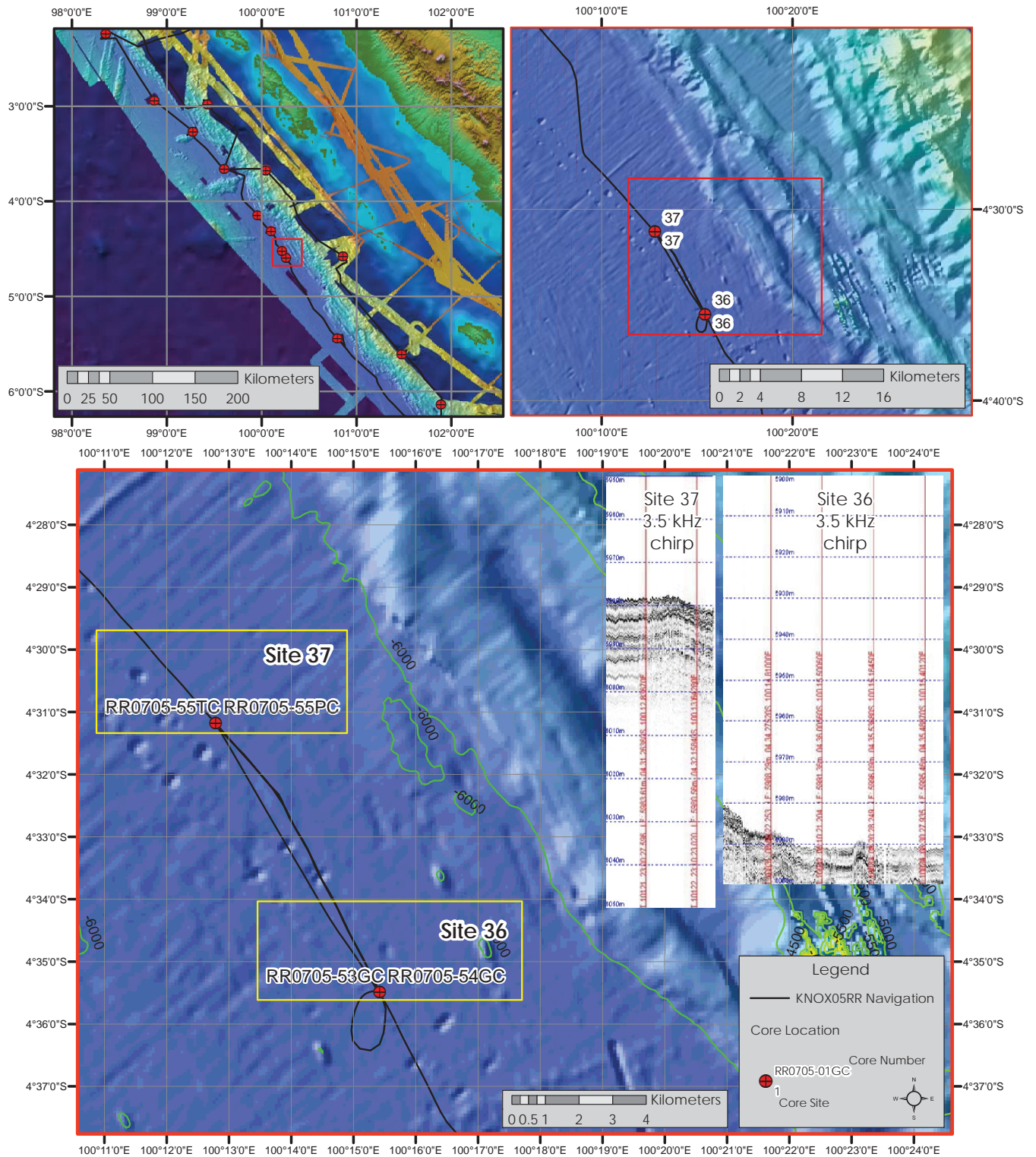


KNOX05RR CORE SITE 35



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
35	RR0705-52GC	Gravity	5/25/07	-4.312672	#####	5991	0.14	14	0	0	0

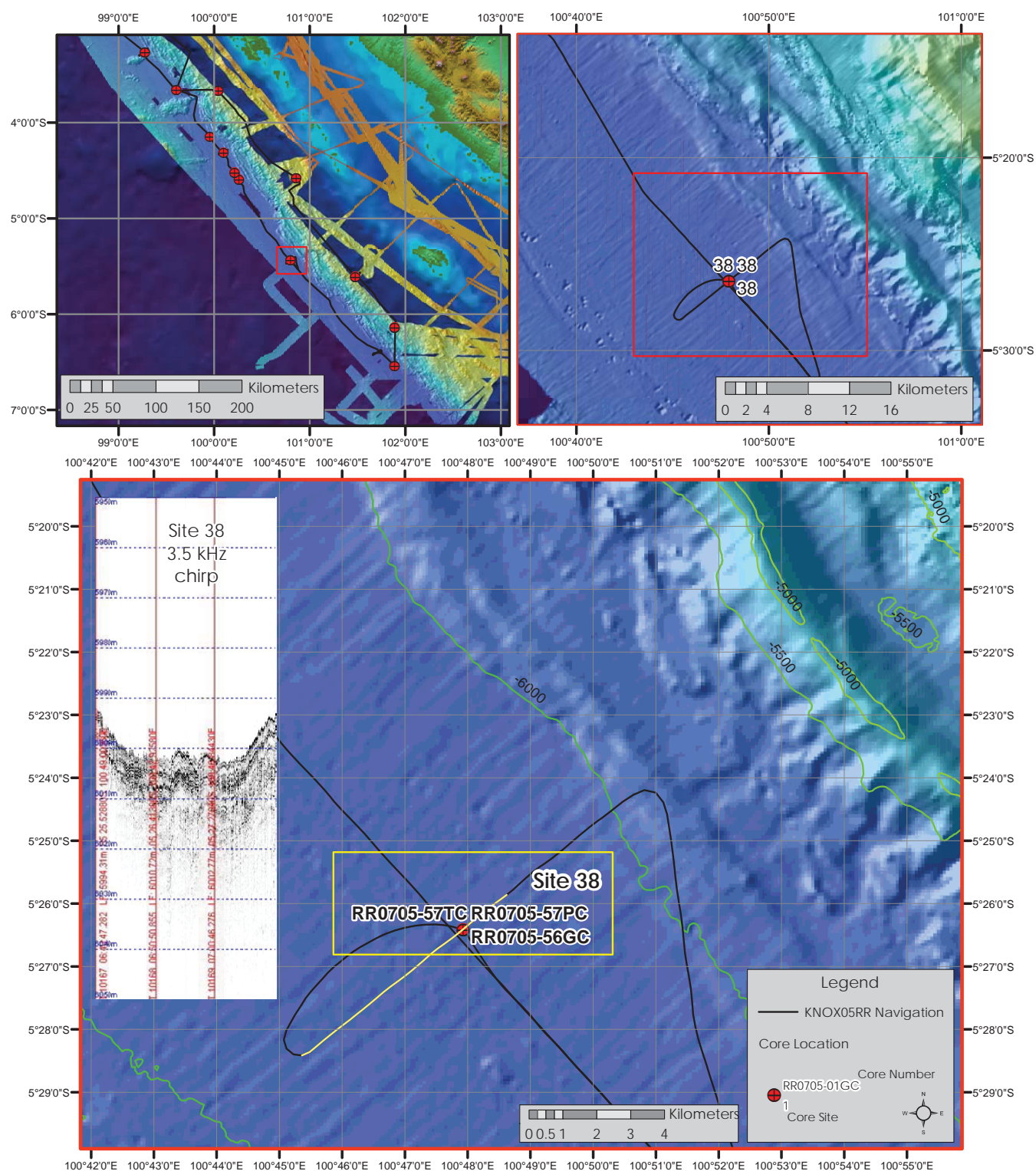
## KNOX05RR CORE SITE 36 AND 37



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
36	RR0705-53GC	Gravity	5/25/07	-4.591495	100.25699	6063	0.17	17	0	0	0
36	RR0705-54GC	Gravity	5/25/07	-4.591495	100.25699	6061	0.43	0	0	0	0
37	RR0705-55TC	Trigger	5/25/07	-4.519663	100.21310	6046	0.00	0	0	0	0
37	RR0705-55PC	Piston	5/25/07	-4.519663	100.21310	6046	2.61	137.5	123	0	0



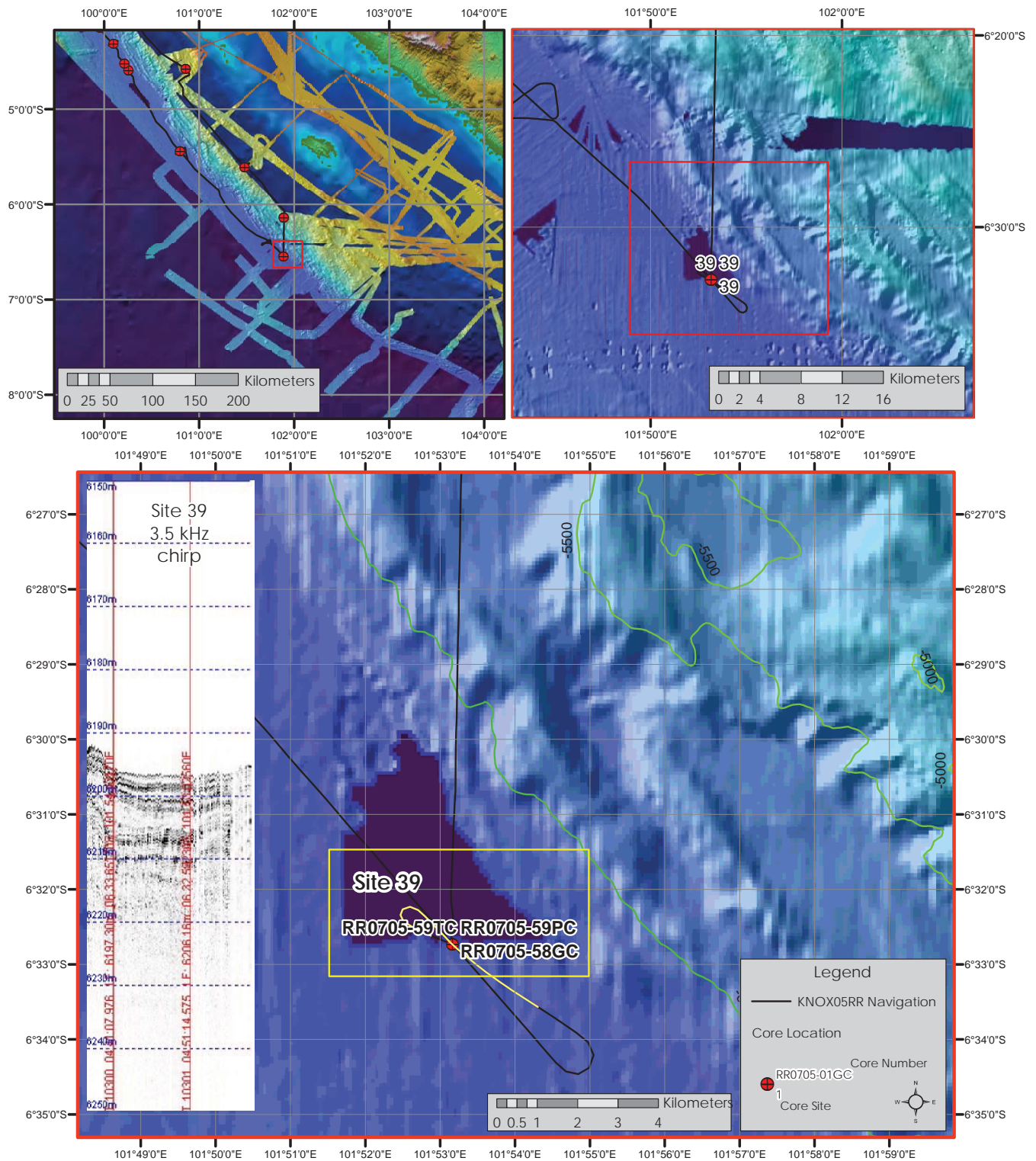
## KNOX05RR CORE SITE 38



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
38	RR0705-56GC	Gravity	5/26/07	-5.440230	100.79876	6069	0.00	0	0	0	0
38	RR0705-57TC	Trigger	5/26/07	-5.440230	100.79876	6069	0.00	0	0	0	0
38	RR0705-57PC	Piston	5/26/07	-5.440230	100.79876	6069	4.86	62.5	150	150	123

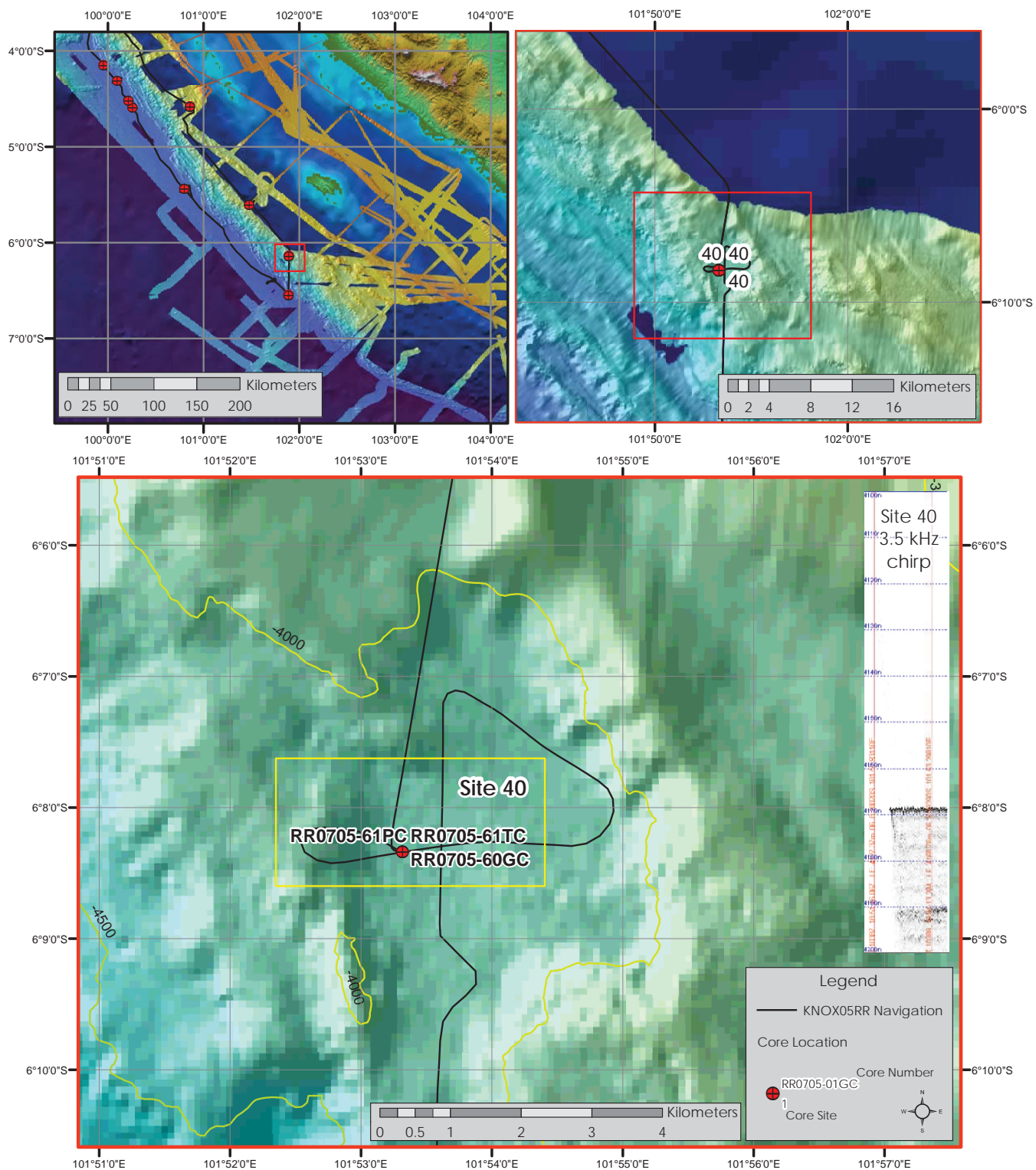


## KNOX05RR CORE SITE 39



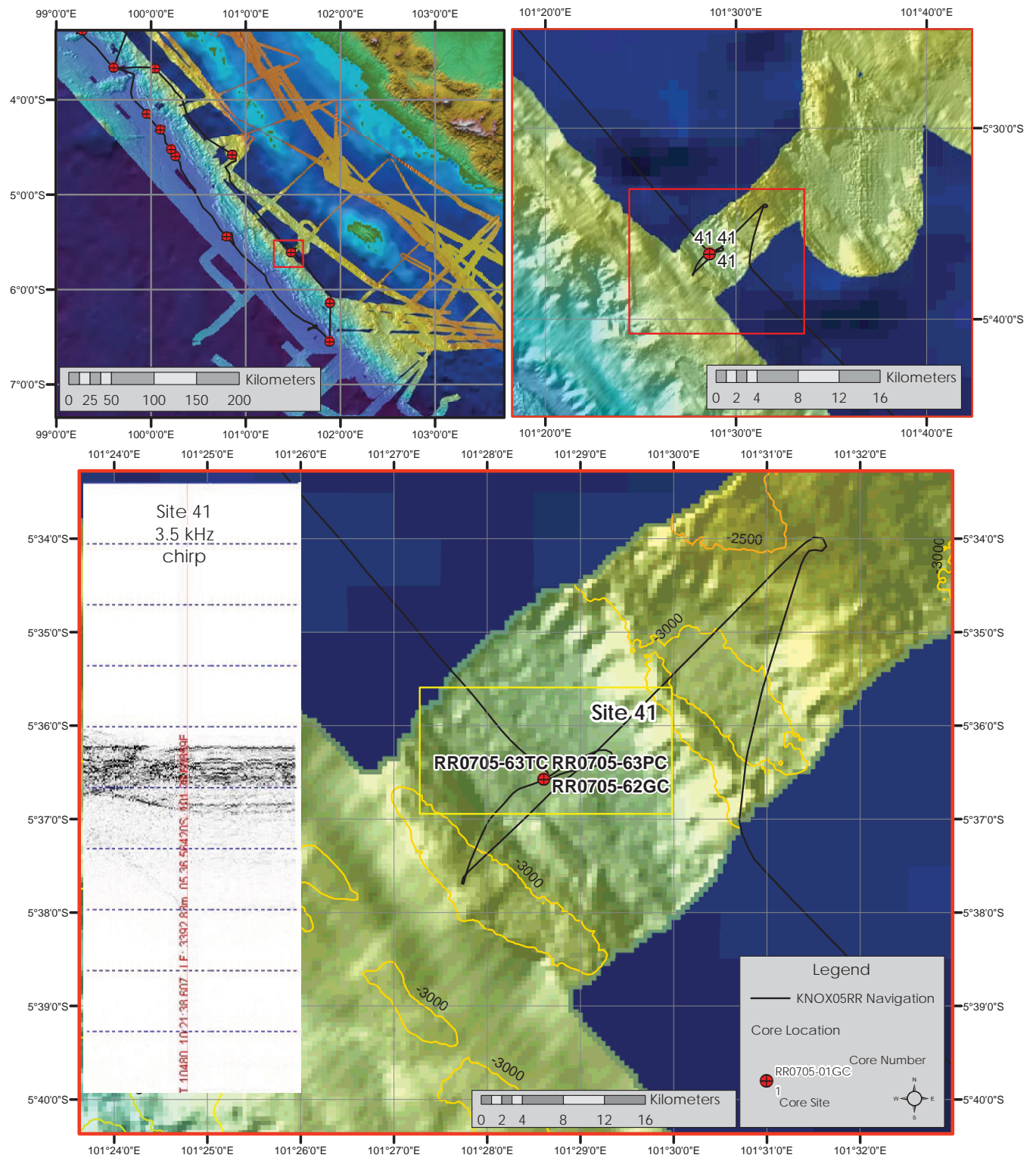
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
39	RR0705-58GC	Gravity	5/26/07	-6.545517	101.88608	6278	1.49	148.9	0	0	0
39	RR0705-59TC	Trigger	5/27/07	-6.545517	101.88608	6275	0.00	0	0	0	0
39	RR0705-59PC	Piston	5/27/07	-6.545517	101.88608	6275	0.00	0	0	0	0

## KNOX05RR CORE SITE 40



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
40	RR0705-60GC	Gravity	5/27/07	-6.138998	101.88863	4184	1.73	72.5	100	0	0
40	RR0705-61PC	Trigger	5/28/07	-6.138998	101.88863	4187	2.75	129	146	0	0
40	RR0705-61TC	Piston	5/28/07	-6.138998	101.88863	4187	4.28	151	150	127	0

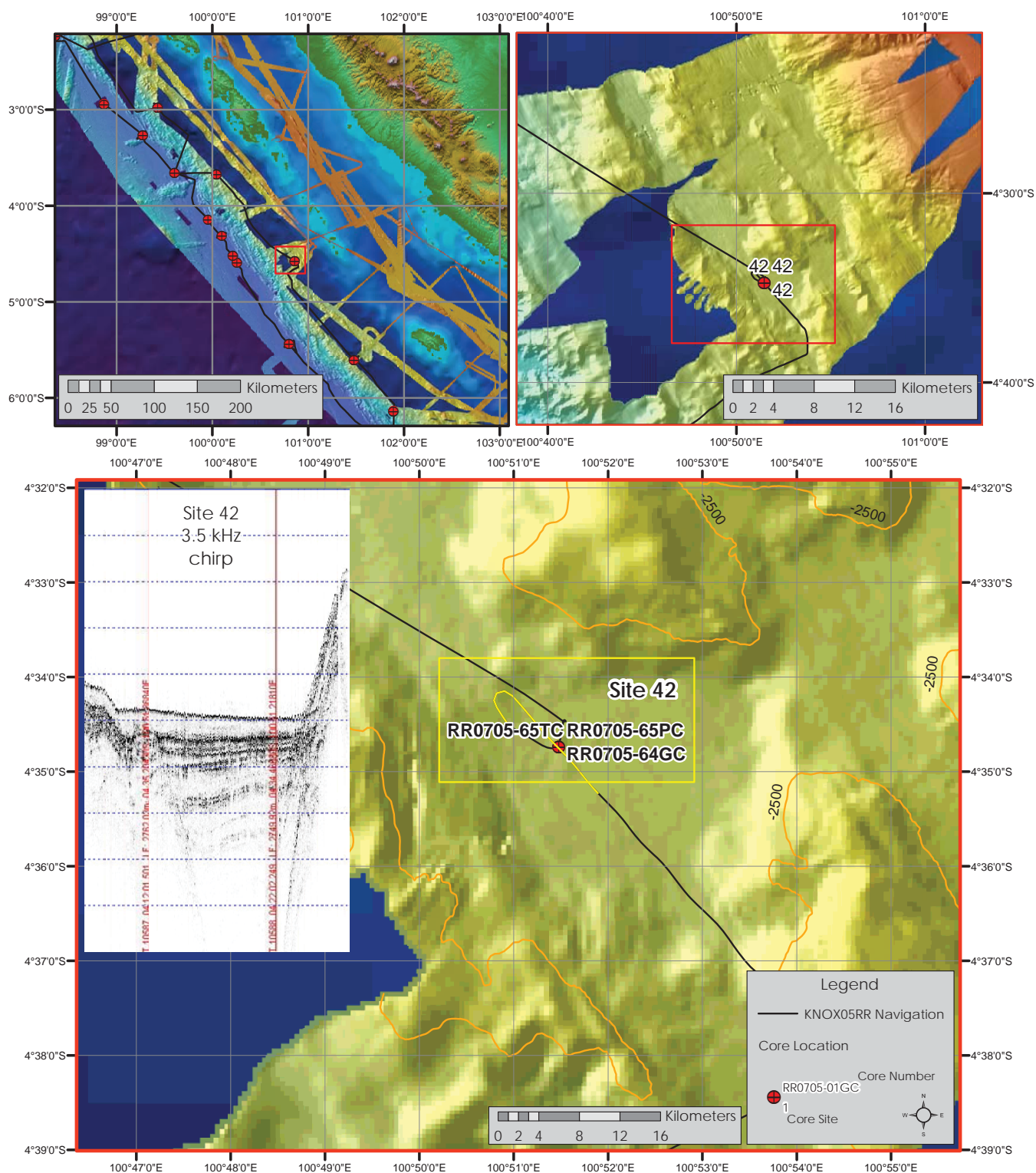
## KNOX05RR CORE SITE 41



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
41	RR0705-62GC	Gravity	5/28/07	-5.609517	101.47680	3392	1.19	119.2	0	0	0
41	RR0705-63TC	Trigger	5/28/07	-5.609517	101.47680	3397	1.10	110	0	0	0
41	RR0705-63PC	Piston	5/28/07	-5.609517	101.47680	3397	2.60	130.8	129.2	0	0



## KNOX05RR CORE SITE 42

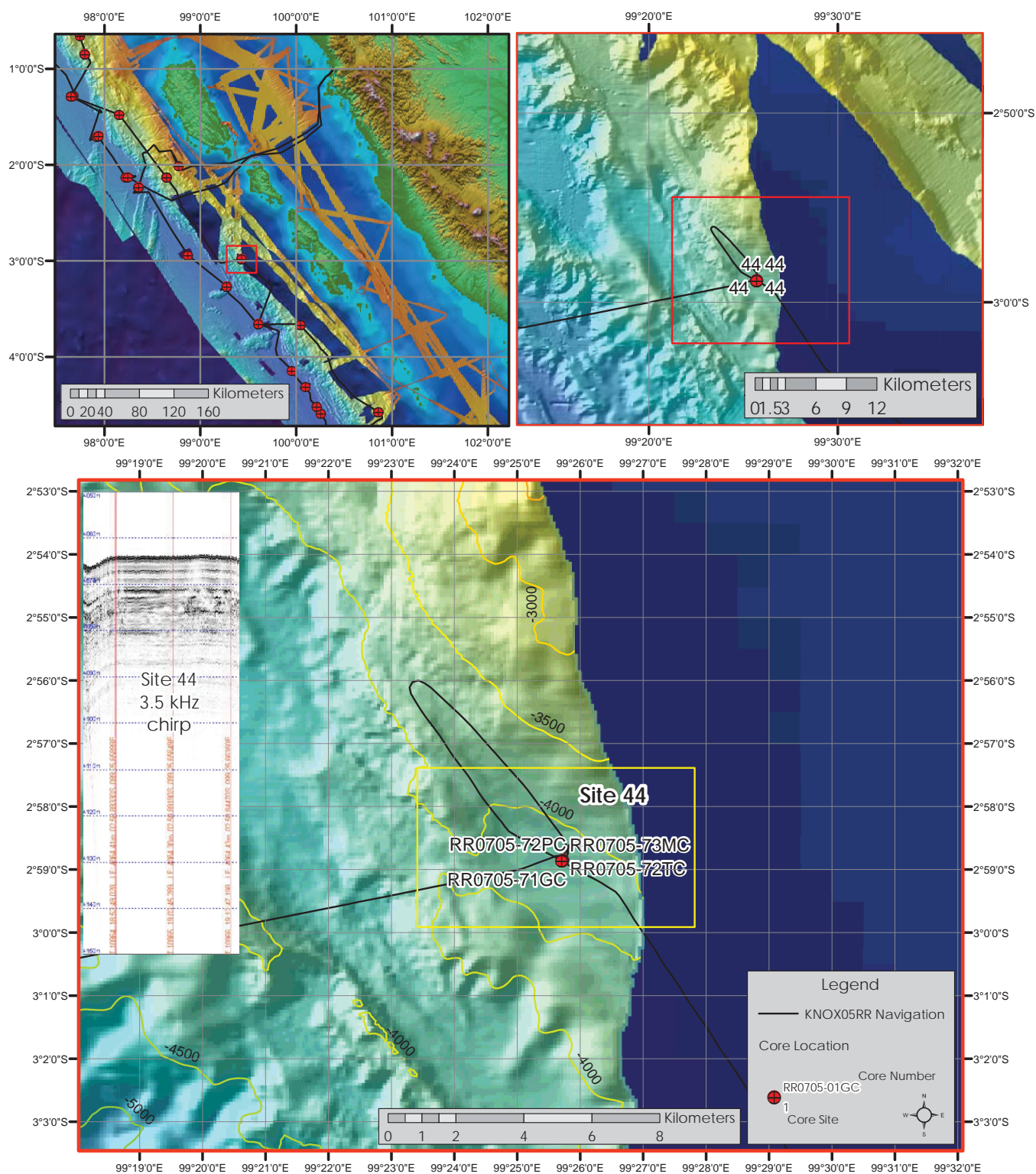


Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
42	RR0705-64GC	Gravity	5/29/07	-4.579000	100.85798	2751	1.77	86.4	90.5	0	0
42	RR0705-65TC	Trigger	5/29/07	-4.579000	100.85798	2751	2.68	142	126	0	0
42	RR0705-65PC	Piston	5/29/07	-4.579000	100.85798	2751	4.92	71.5	150.5	150.3	120





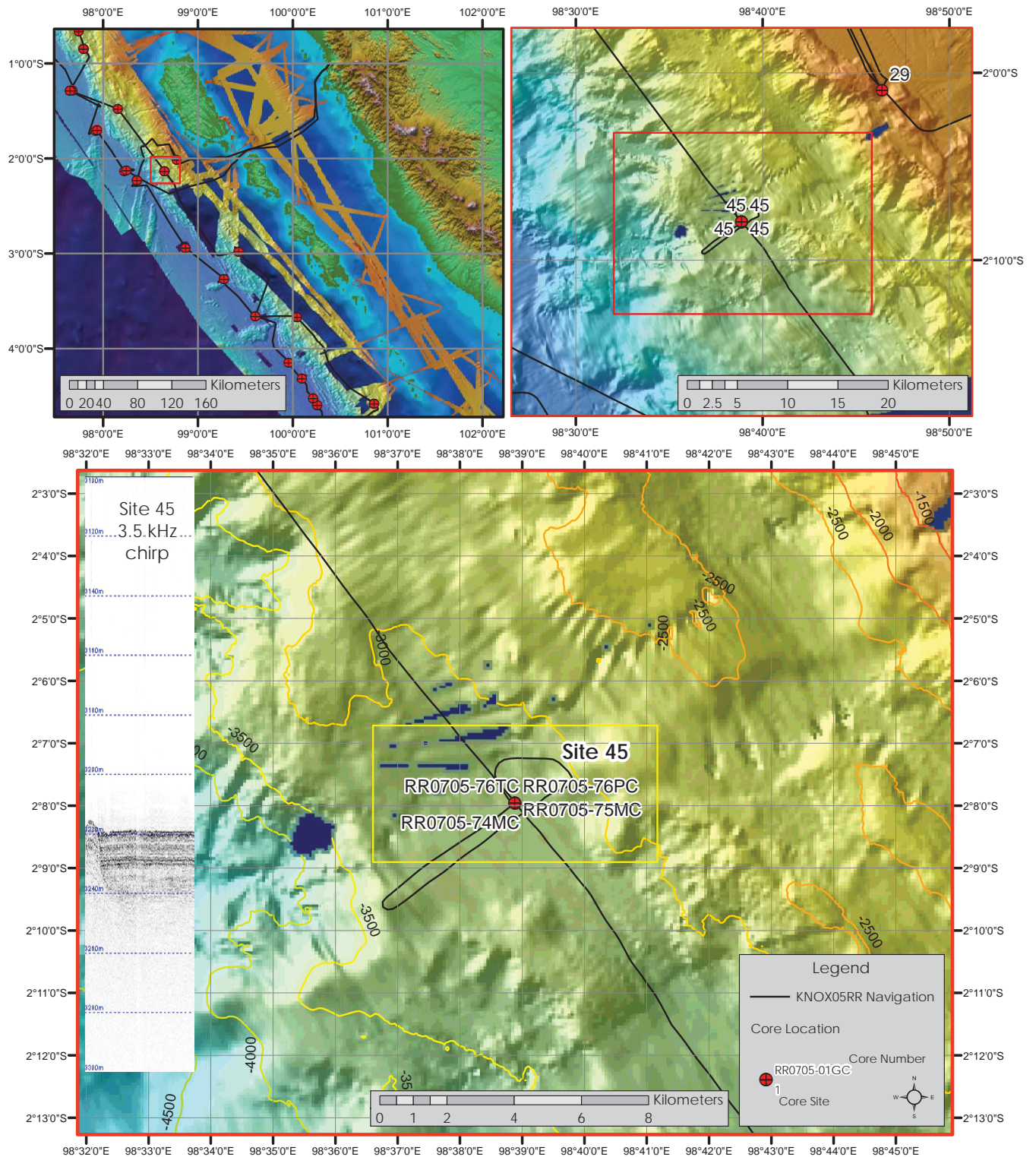
## KNOX05RR CORE SITE 44



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
44	RR0705-71GC	Gravity	5/31/07	-2.980920	99.42830	4082	1.27	126.5	0	0	0
44	RR0705-72TC	Trigger	5/31/07	-2.980920	99.42830	4082	2.35	84	150.5	0	0
44	RR0705-72PC	Piston	5/31/07	-2.980920	99.42830	4082	4.99	69	150.5	151	128.8
44	RR0705-73MC	Multicore	6/1/07	-2.980920	99.42830	4080	0.20	19.9	0	0	0

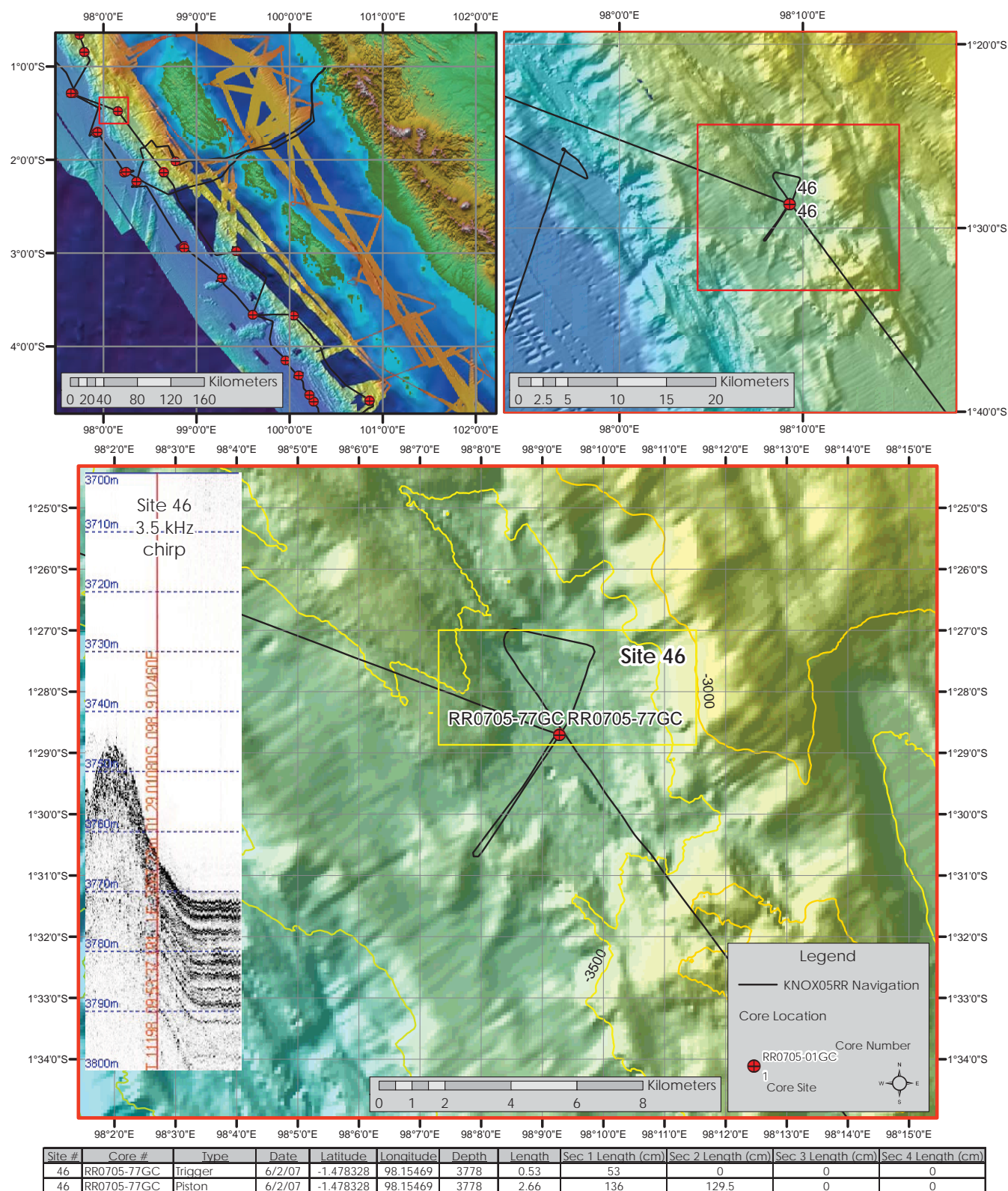


## KNOX05RR CORE SITE 45



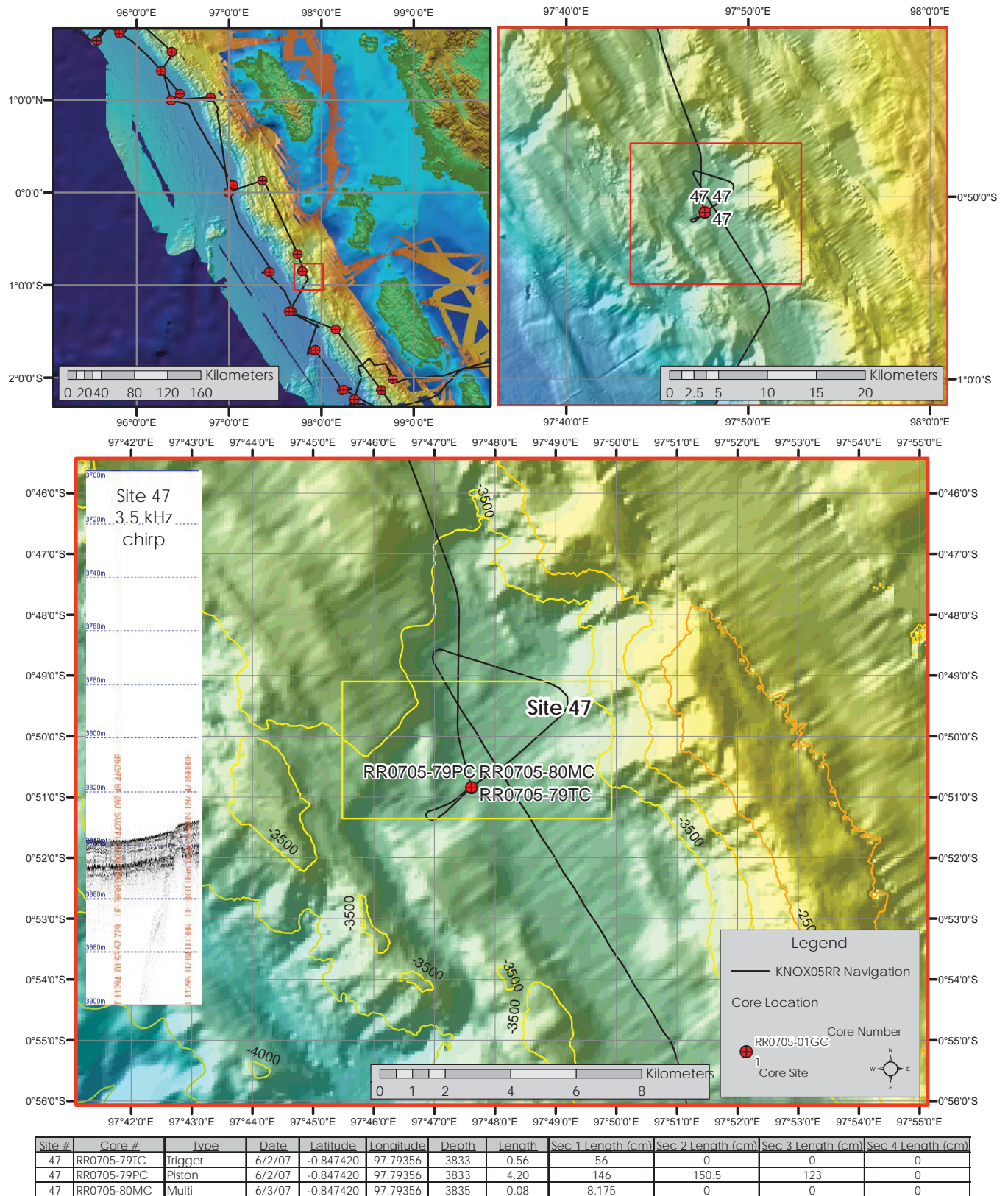
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
45	RR0705-74MC	Multicore	6/1/07	-2.132519	98.64807	4080	0.00	0	0	0	0
45	RR0705-75MC	Multicore	6/1/07	-2.132519	98.64807	3221	0.12	12.0	0	0	0
45	RR0705-76TC	Trigger	6/2/07	-2.132519	98.64807	3221	1.14	114	0	0	0
45	RR0705-76PC	Piston	6/2/07	-2.132519	98.64807	3221	4.18	150	150.5	117.5	0

## KNOX05RR CORE SITE 46



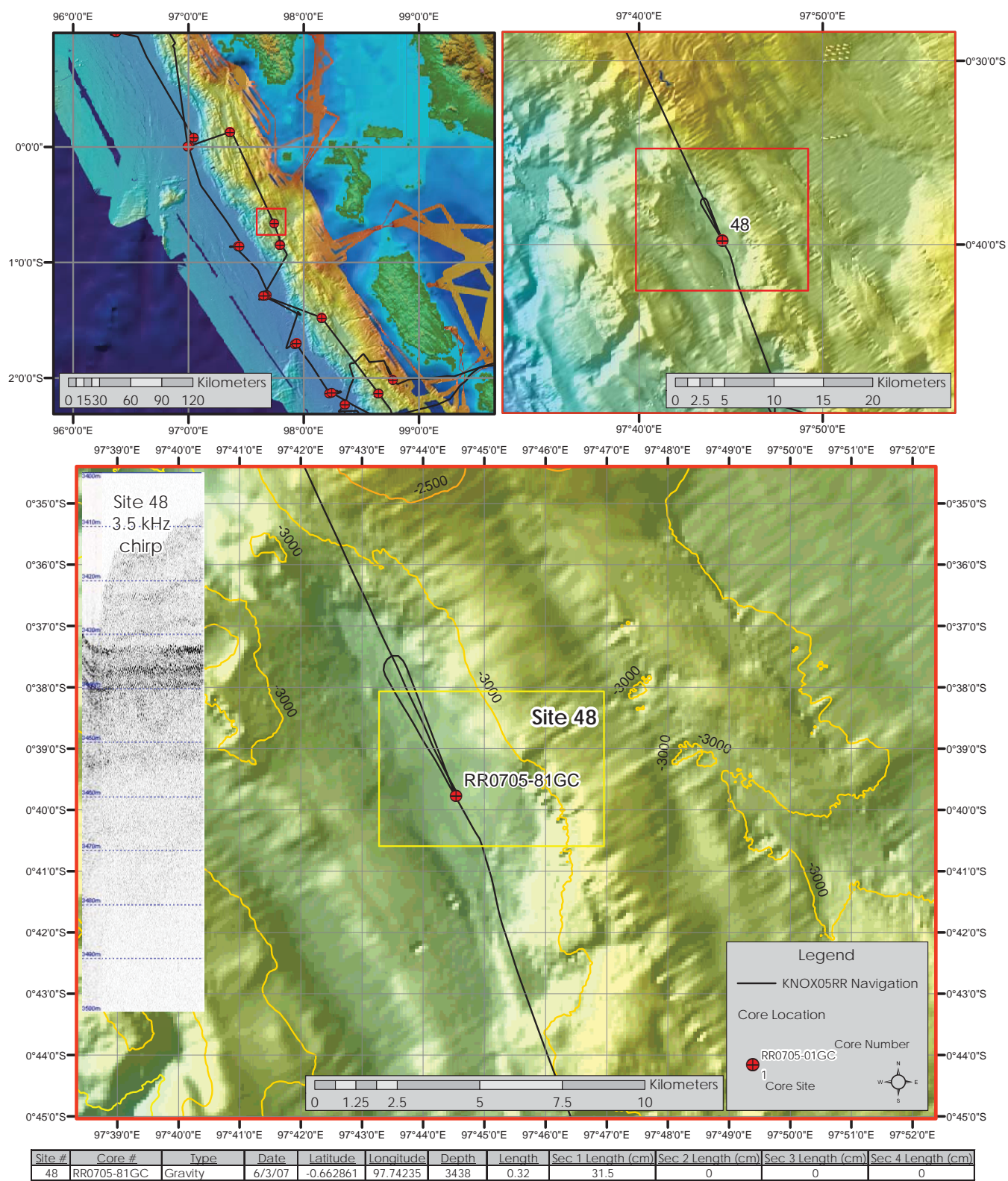


## KNOX05RR CORE SITE 47

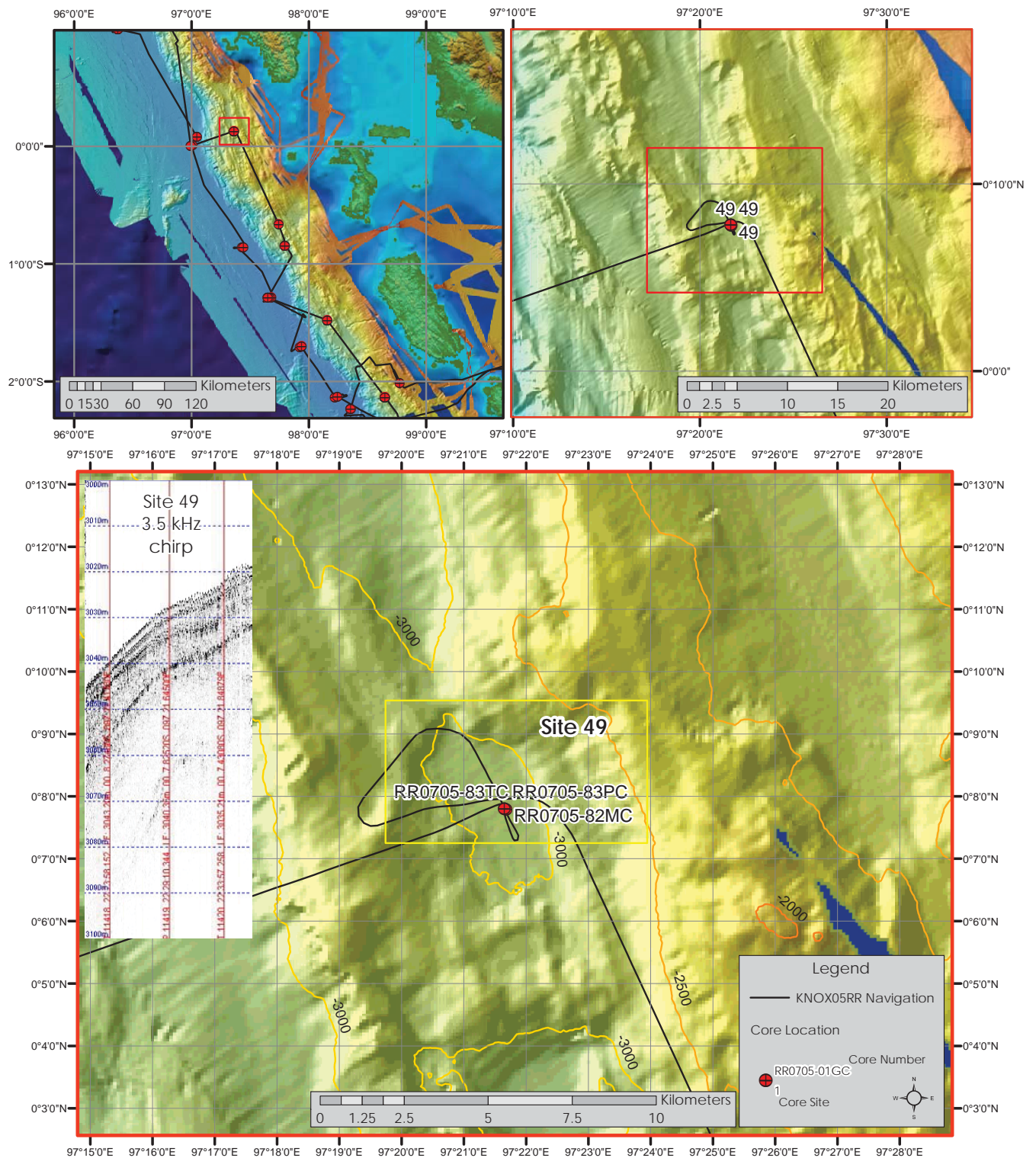




## KNOX05RR CORE SITE 48



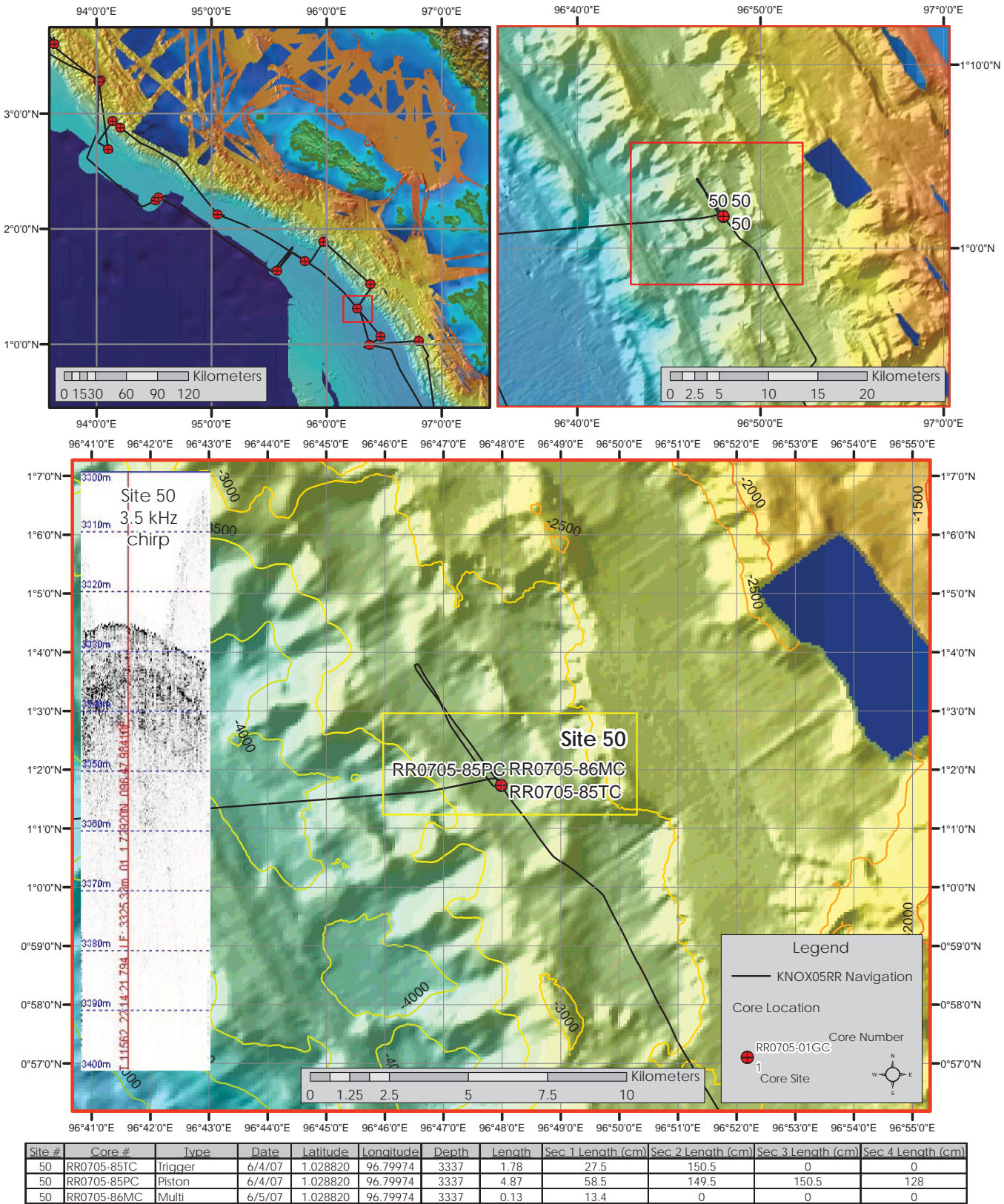
## KNOX05RR CORE SITE 49



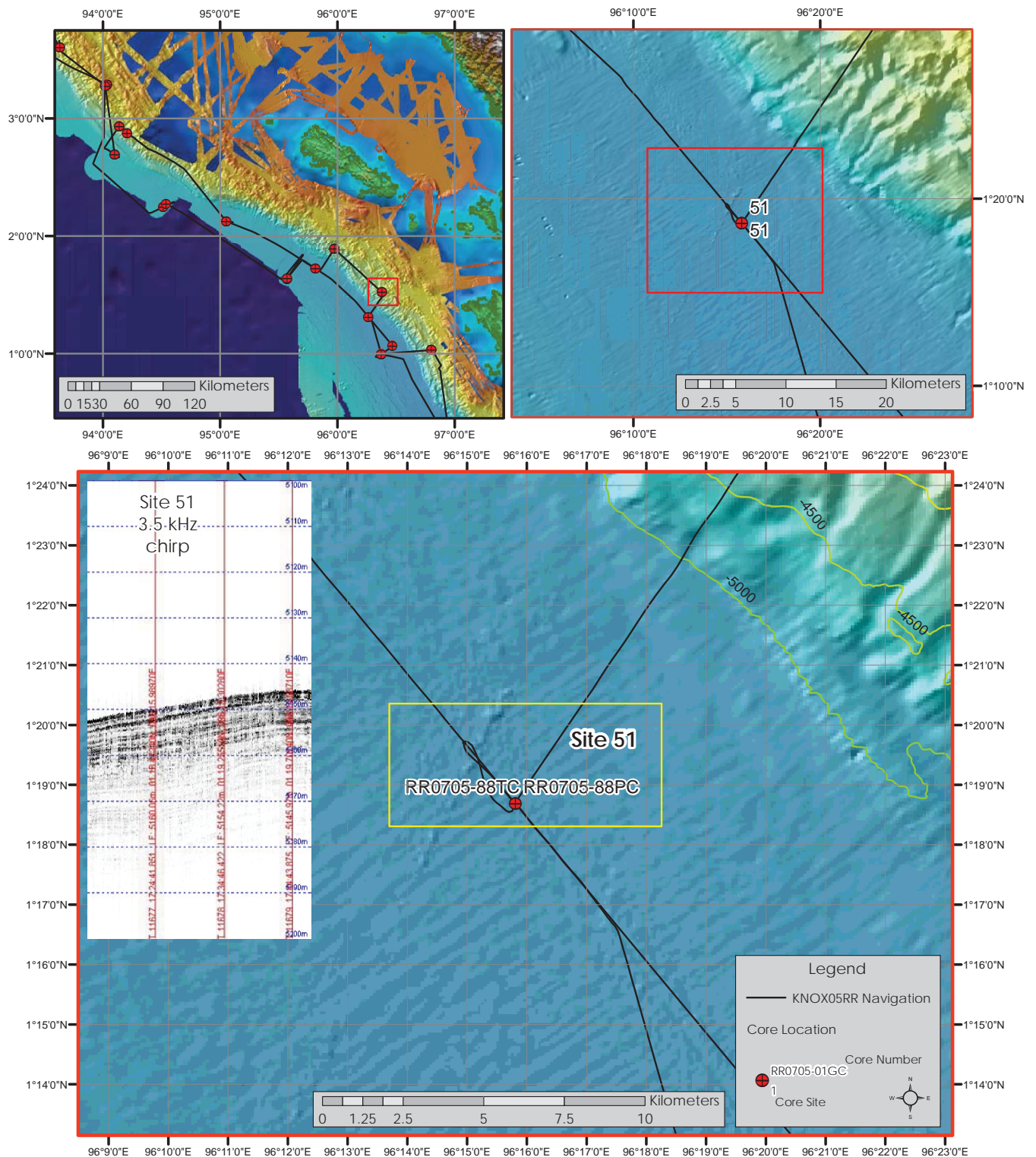
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
49	RR0705-82MC	Multi	6/3/07	0.130420	97.36075	3038	0.22	21.7	0	0	0
49	RR0705-83TC	Trigger	6/4/07	0.130420	97.36075	3034	2.09	78.5	130	0	0
49	RR0705-83PC	Piston	6/4/07	0.130420	97.36075	3034	4.87	56	150.5	151	129.5



KNOX05RR CORE SITE 50



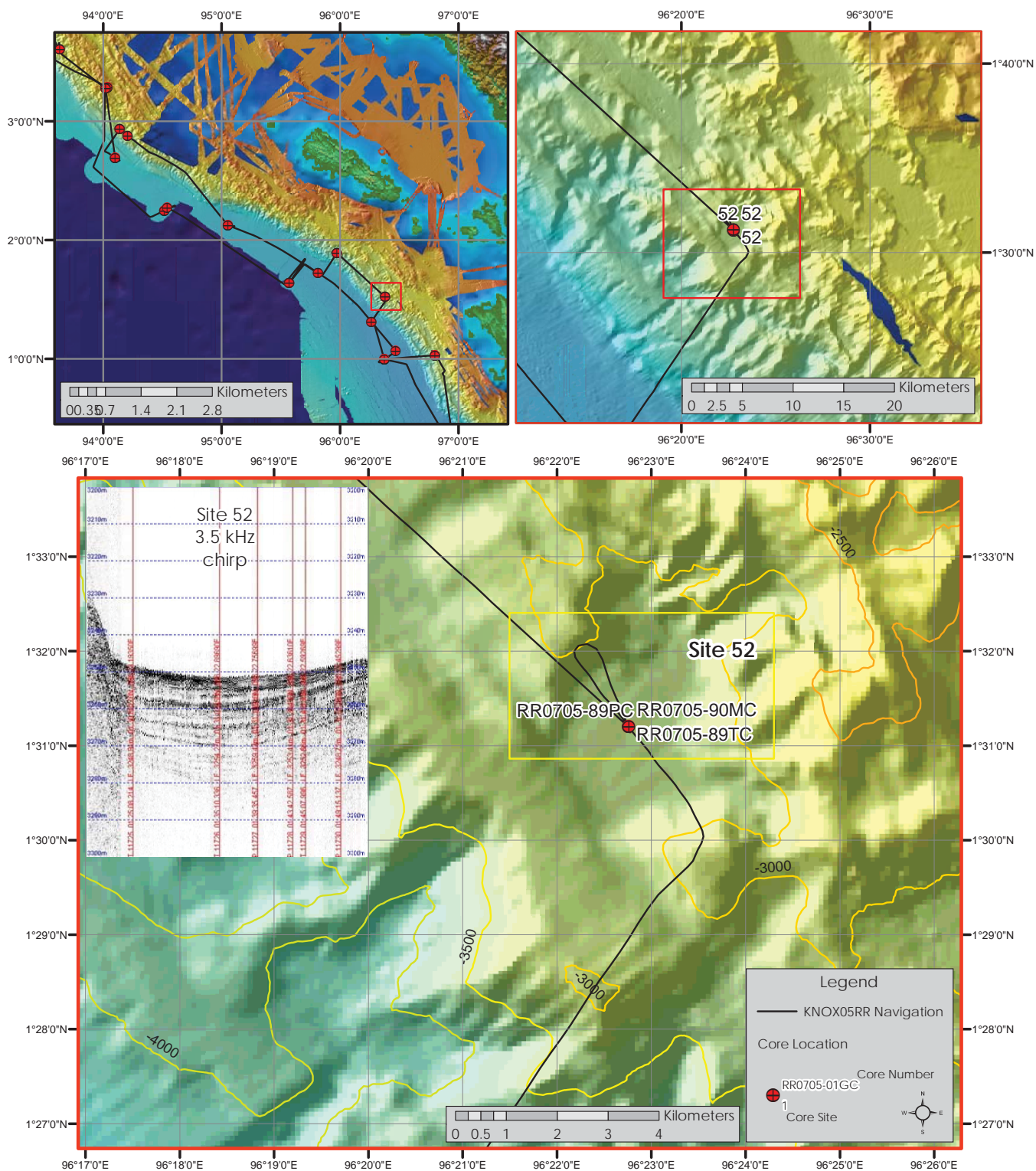
## KNOX05RR CORE SITE 51



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
51	RR0705-88TC	Trigger	6/5/07	1.311539	96.26348	5197	0.91	90.5	0	0	0
51	RR0705-88PC	Piston	6/5/07	1.311539	96.26348	5197	4.71	41.5	150.5	150.5	128.5

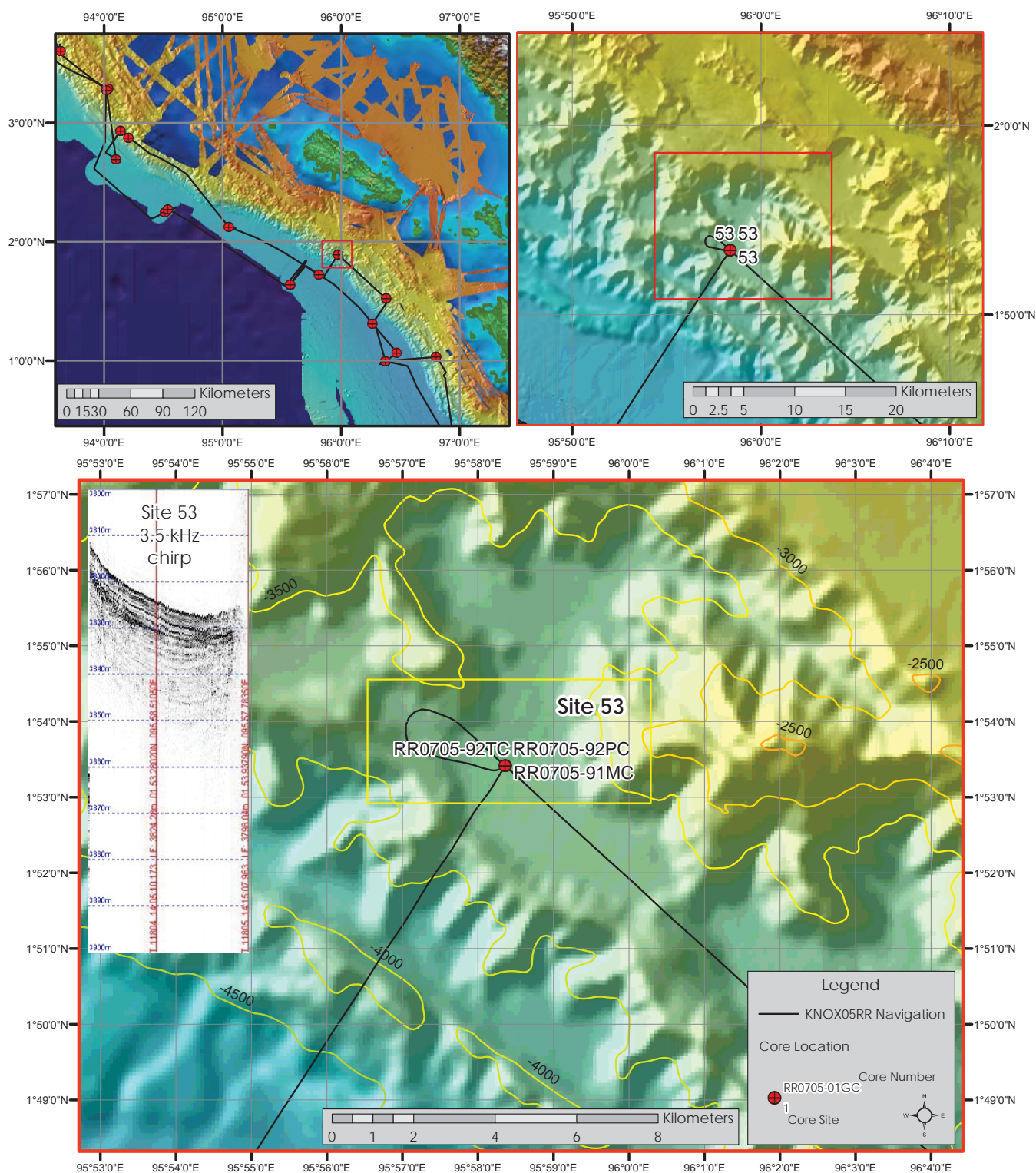


## KNOX05RR CORE SITE 52



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
52	RR0705-89TC	Trigger	6/5/07	1.519985	96.37928	3255	1.48	147.5	0	0	0
52	RR0705-89PC	Piston	6/6/07	1.519985	96.37928	3255	4.38	15.5	151	151.5	120
52	RR0705-90MC	Multi	6/6/07	1.519985	96.37928	3255	0.13	12.7	0	0	0

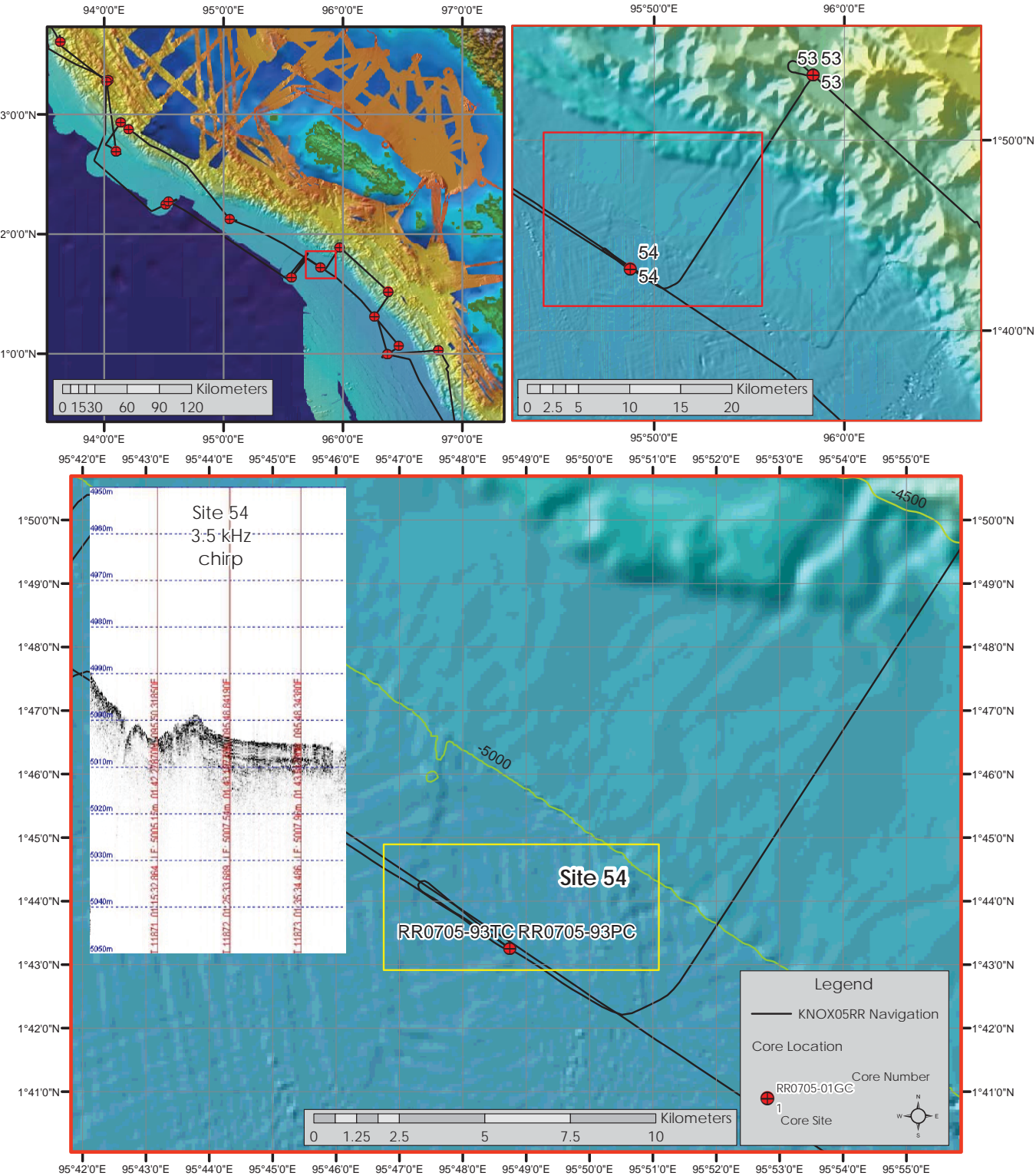
## KNOX05RR CORE SITE 53



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
53	RR0705-91MC	Multi	6/6/07	1.890244	95.97264	3836	0.14	14.4	0	0	0
53	RR0705-92TC	Trigger	6/7/07	1.890244	95.97264	3836	1.14	114	0	0	0
53	RR0705-92PC	Piston	6/7/07	1.890244	95.97264	3836	4.77	55.5	151	150	120

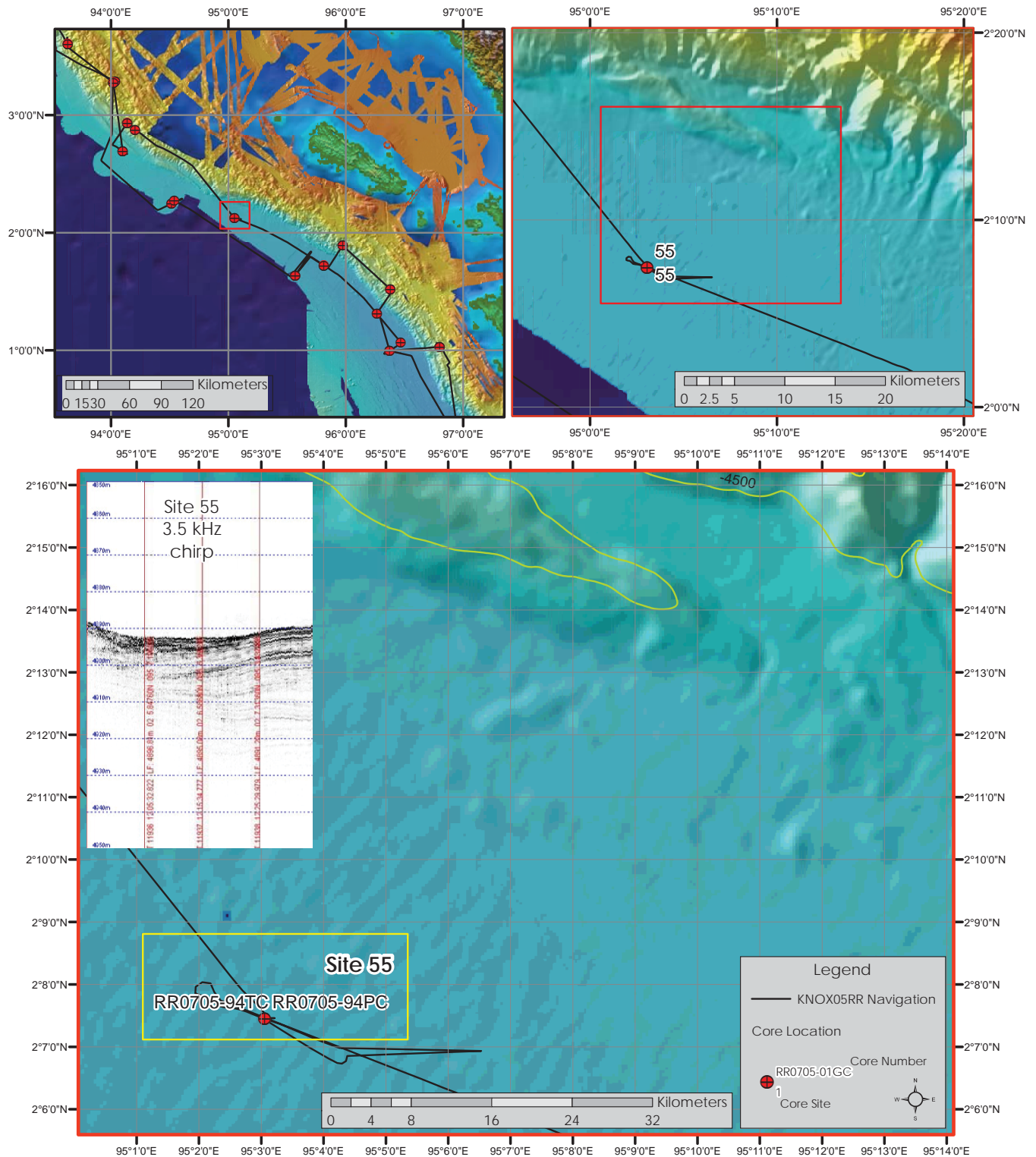


KNOX05RR CORE SITE 54



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
54	RR0705-93TC	Trigger	6/7/07	1.720878	95.81238	5040	1.20	120.2	0	0	0
54	RR0705-93PC	Piston	6/7/07	1.720878	95.81238	5040	4.92	65.5	150.5	151	124.5

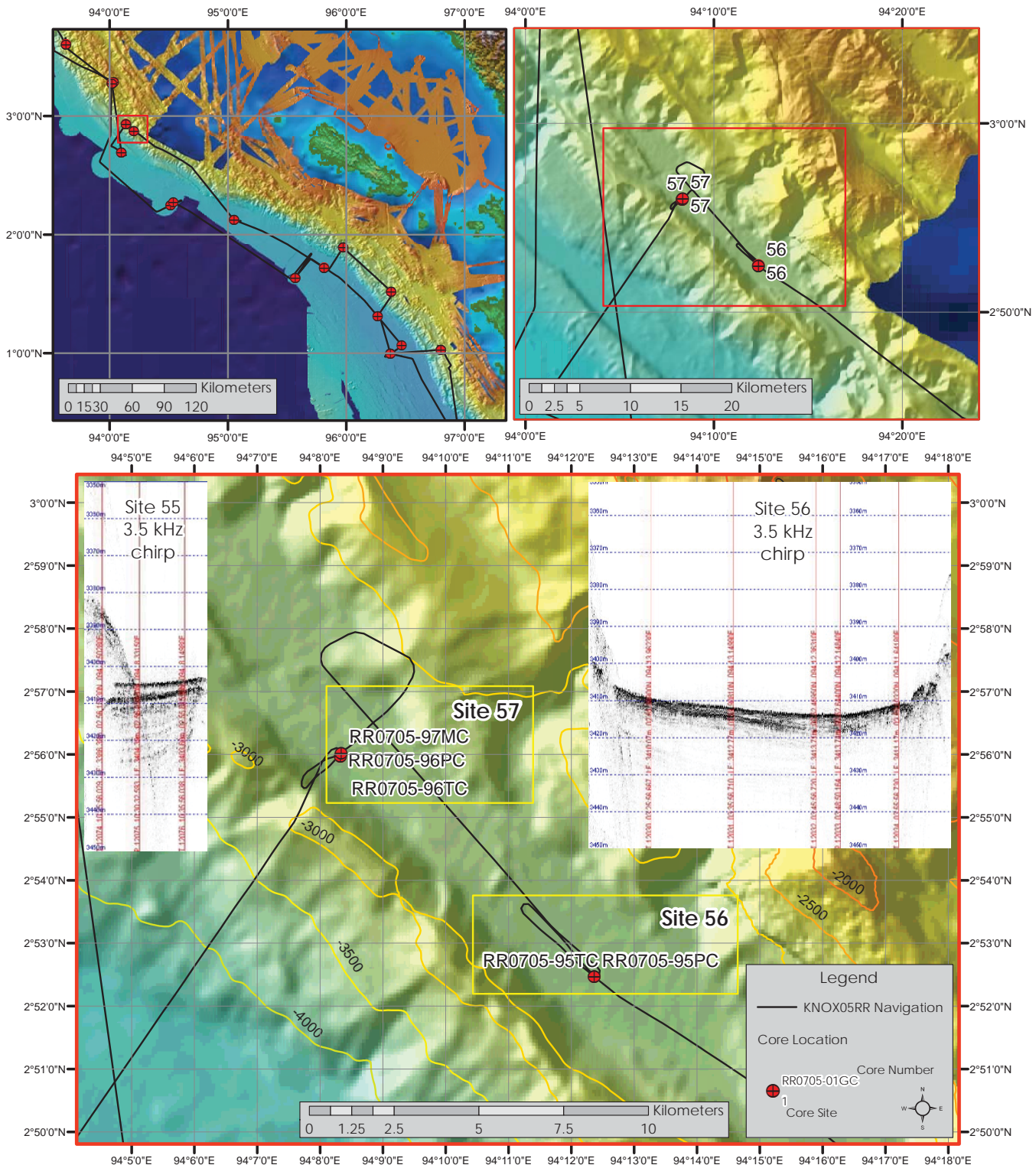
## KNOX05RR CORE SITE 55



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
55	RR0705-94TC	Trigger	6/7/07	2.124169	95.05103	4918	0.00	0	0	0	0
55	RR0705-94PC	Piston	6/7/07	2.124169	95.05103	4918	3.81	108	150.5	122.5	0

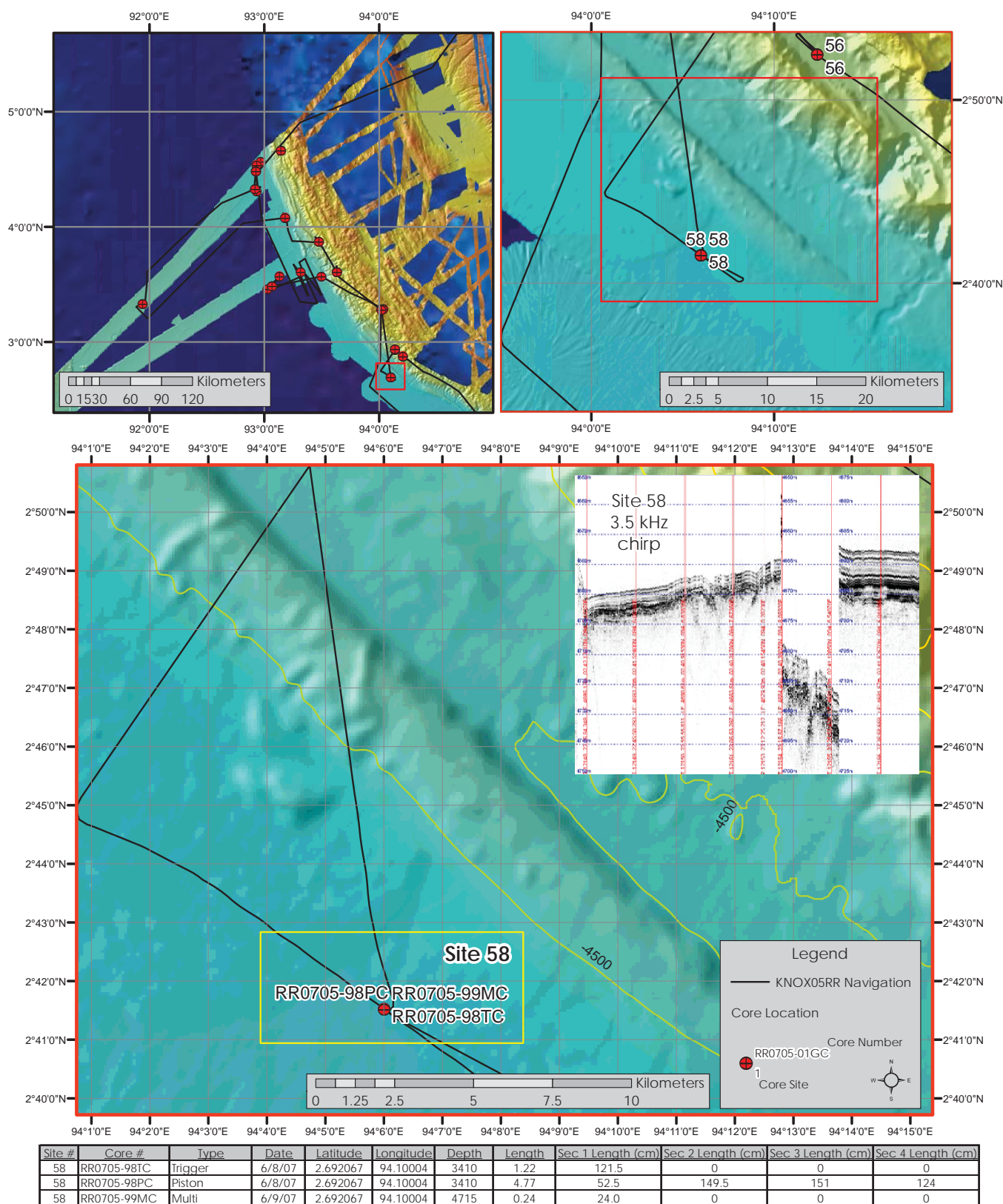


## KNOX05RR CORE SITE 56 &amp; 57



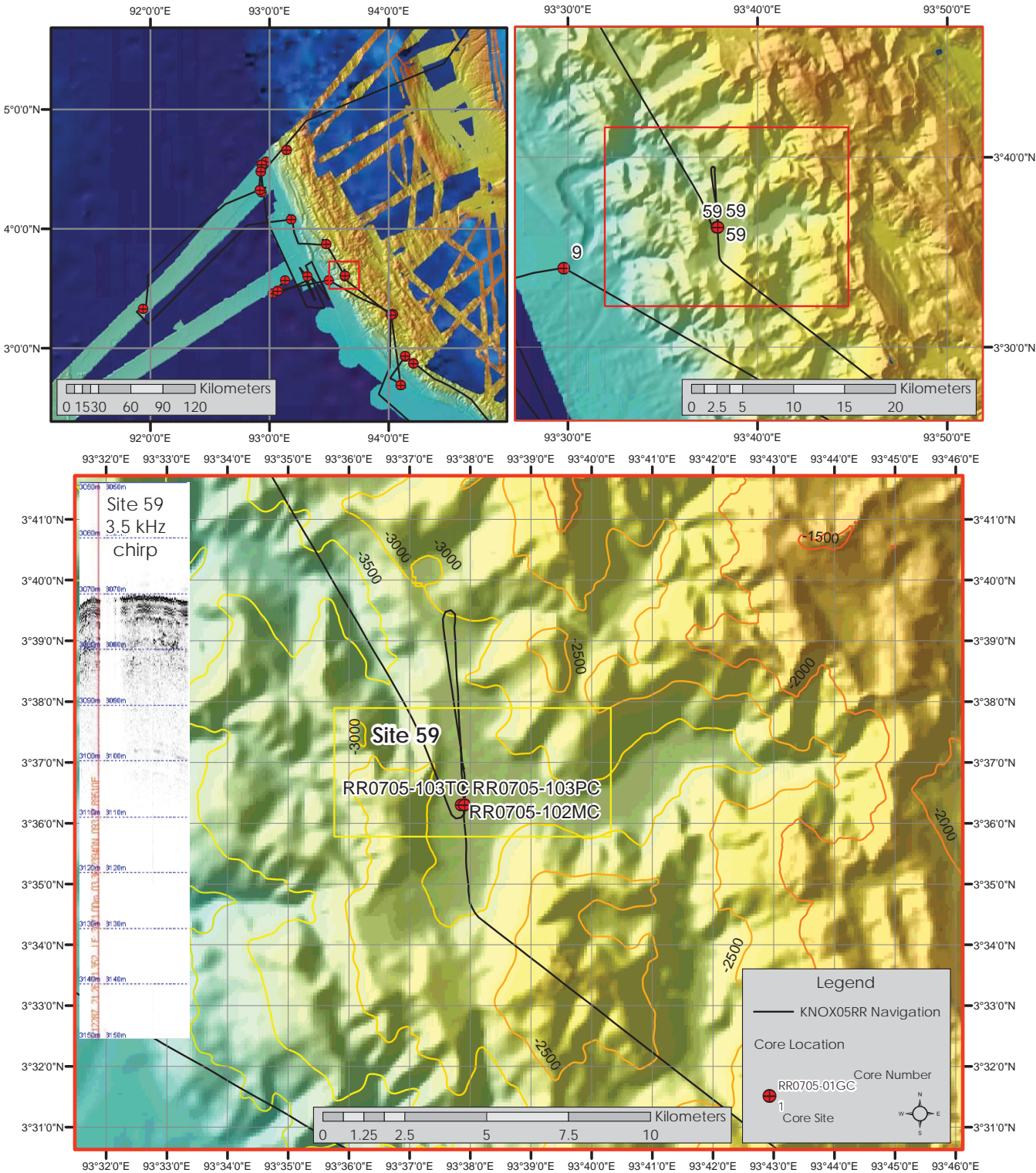
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
56	RR0705-95TC	Trigger	6/8/07	2.874492	94.20605	3418	0.00	0	0	0	0
56	RR0705-95PC	Piston	6/8/07	2.874492	94.20605	3418	2.23	101	121.5	0	0
57	RR0705-96TC	Trigger	6/8/07	2.933647	94.13900	3410	1.33	132.7	0	0	0
57	RR0705-96PC	Piston	6/8/07	2.933647	94.13900	3410	4.40	42.6	137	144.7	115.7
57	RR0705-97MC	Multi	6/8/07	2.933647	94.13900	3412	0.68	68.3	0	0	0

## KNOX05RR CORE SITE 58



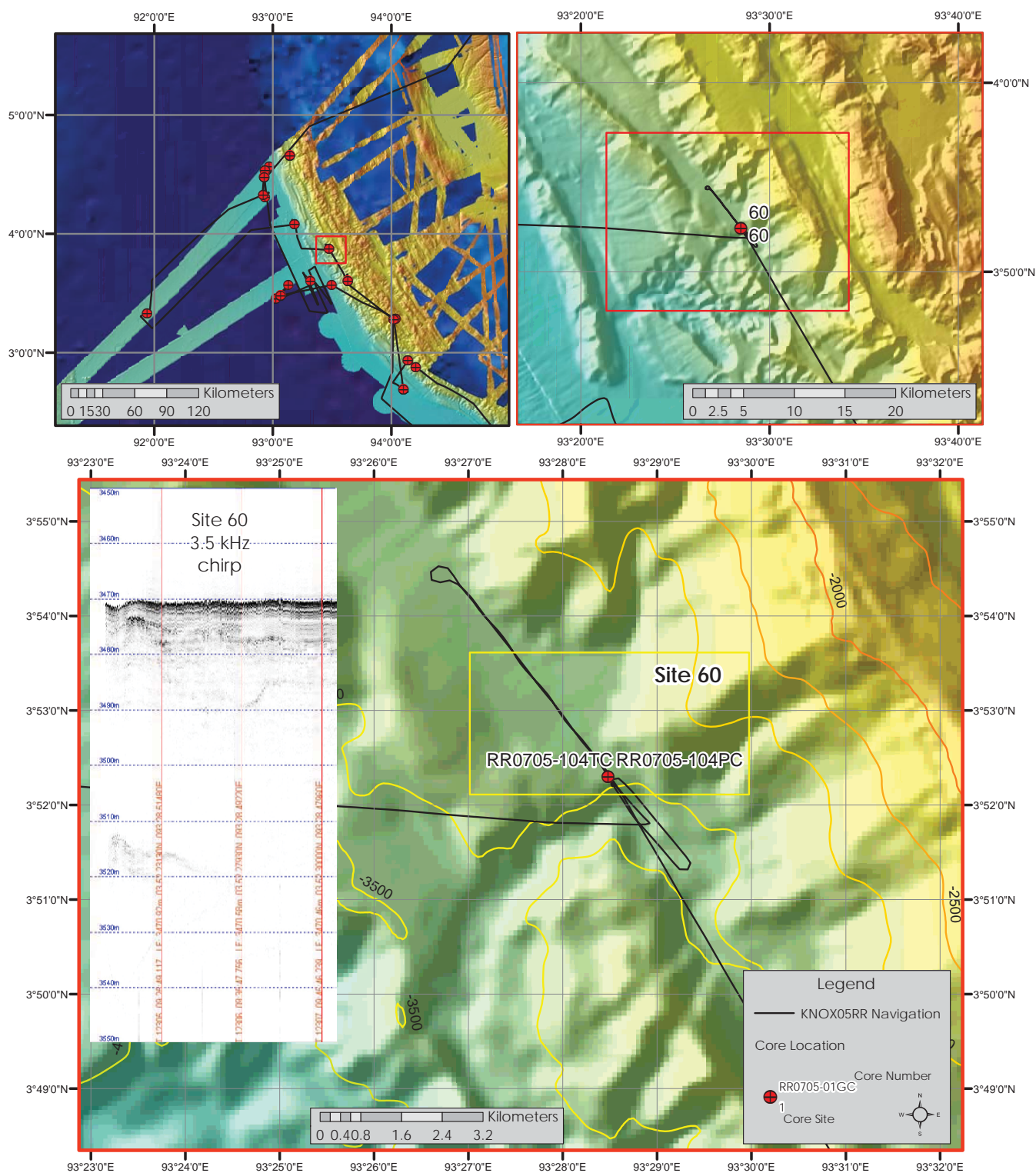


KNOX05RR CORE SITE 59



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
59	RR0705-102MC	Multi	6/9/07	3.605067	93.63152	3073	0.22	21.9	0	0	0
59	RR0705-103TC	Trigger	6/10/07	3.605067	93.63152	3073	1.63	100	63	0	0
59	RR0705-103PC	Piston	6/10/07	3.605067	93.63152	3073	4.74	44	150.5	150.5	129

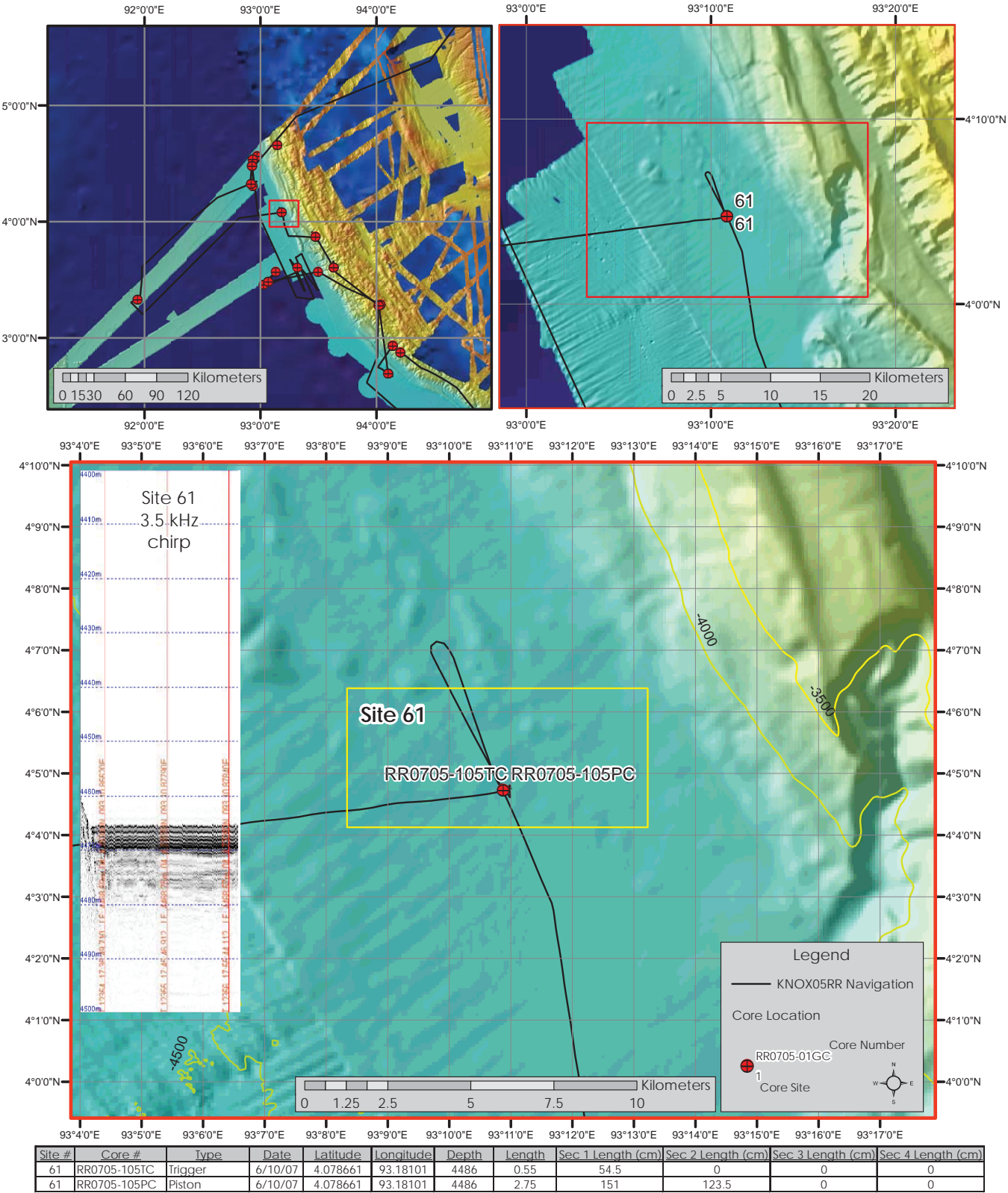
## KNOX05RR CORE SITE 60



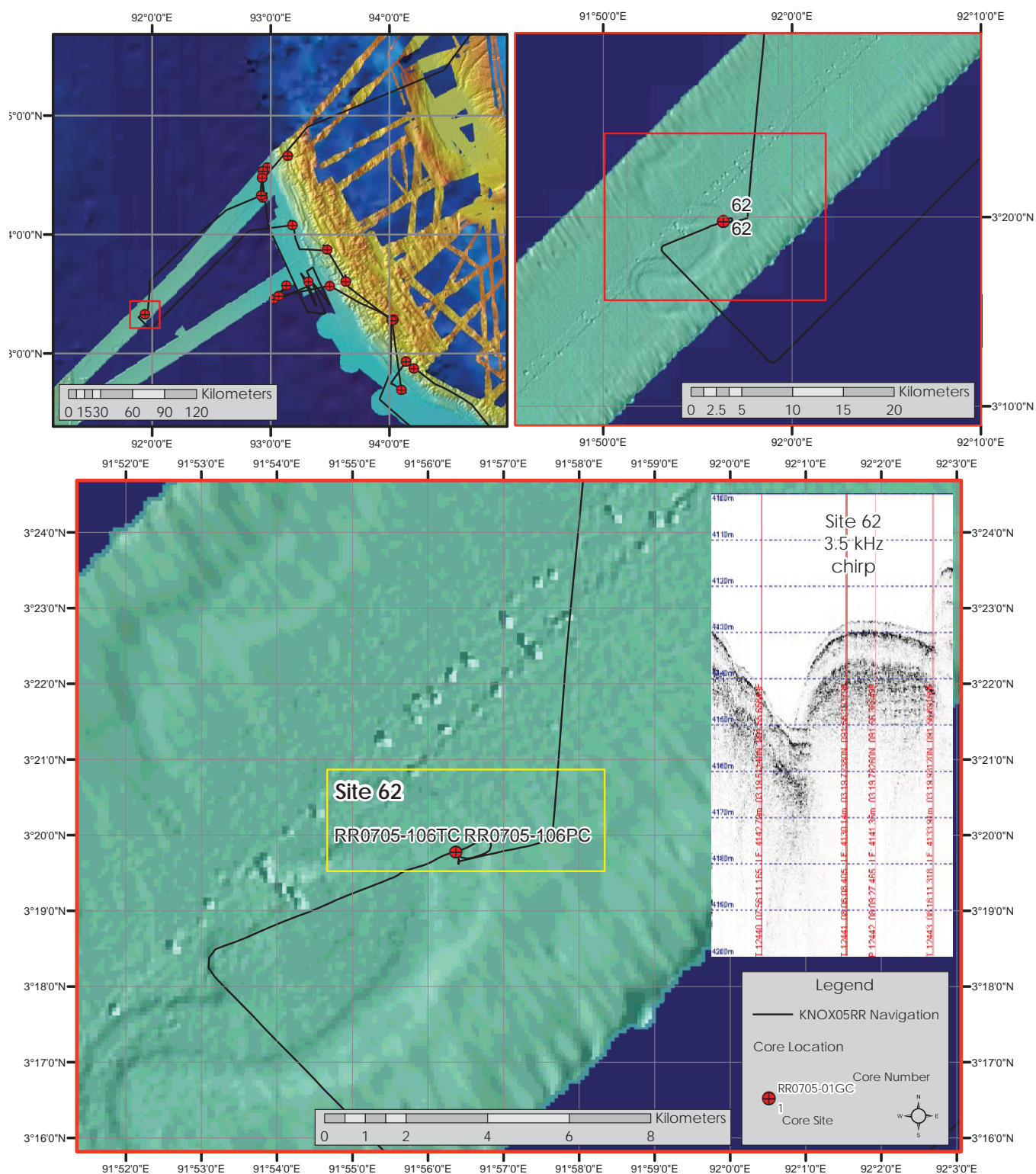
Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
60	RR0705-104TC	Trigger	6/10/07	3.871614	93.47467	3476	1.92	92.3	100.1	0	0
60	RR0705-104PC	Piston	6/10/07	3.871614	93.47467	3476	4.58	30.2	150.3	150	127



KNOX05RR CORE SITE 61



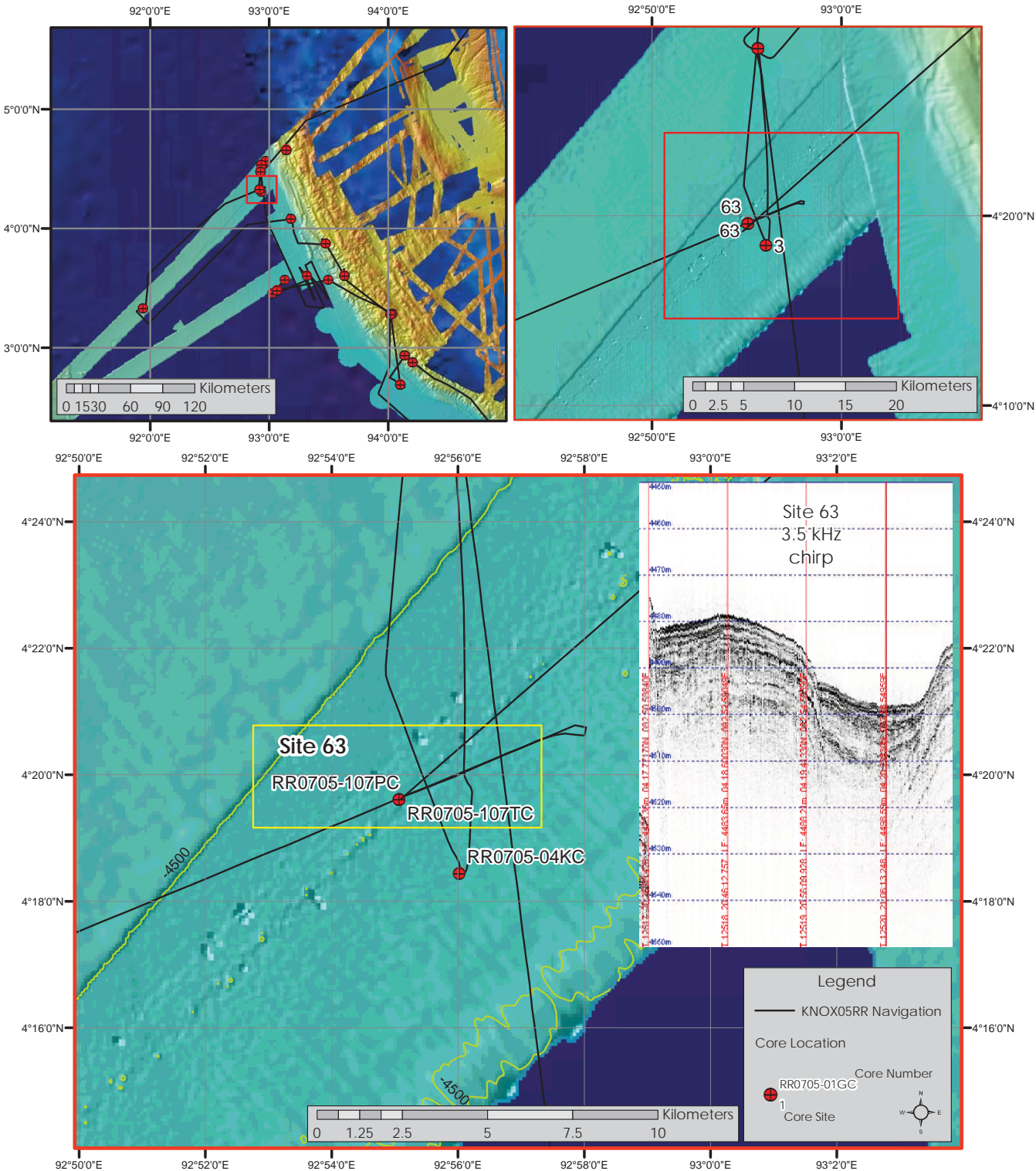
## KNOX05RR CORE SITE 62



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
62	RR0705-106TC	Trigger	6/11/07	3.329710	91.93944	4142	2.45	99.6	145.6	0	0
62	RR0705-106PC	Piston	6/11/07	3.329710	91.93944	4142	3.51	139.4	132.9	78.7	0

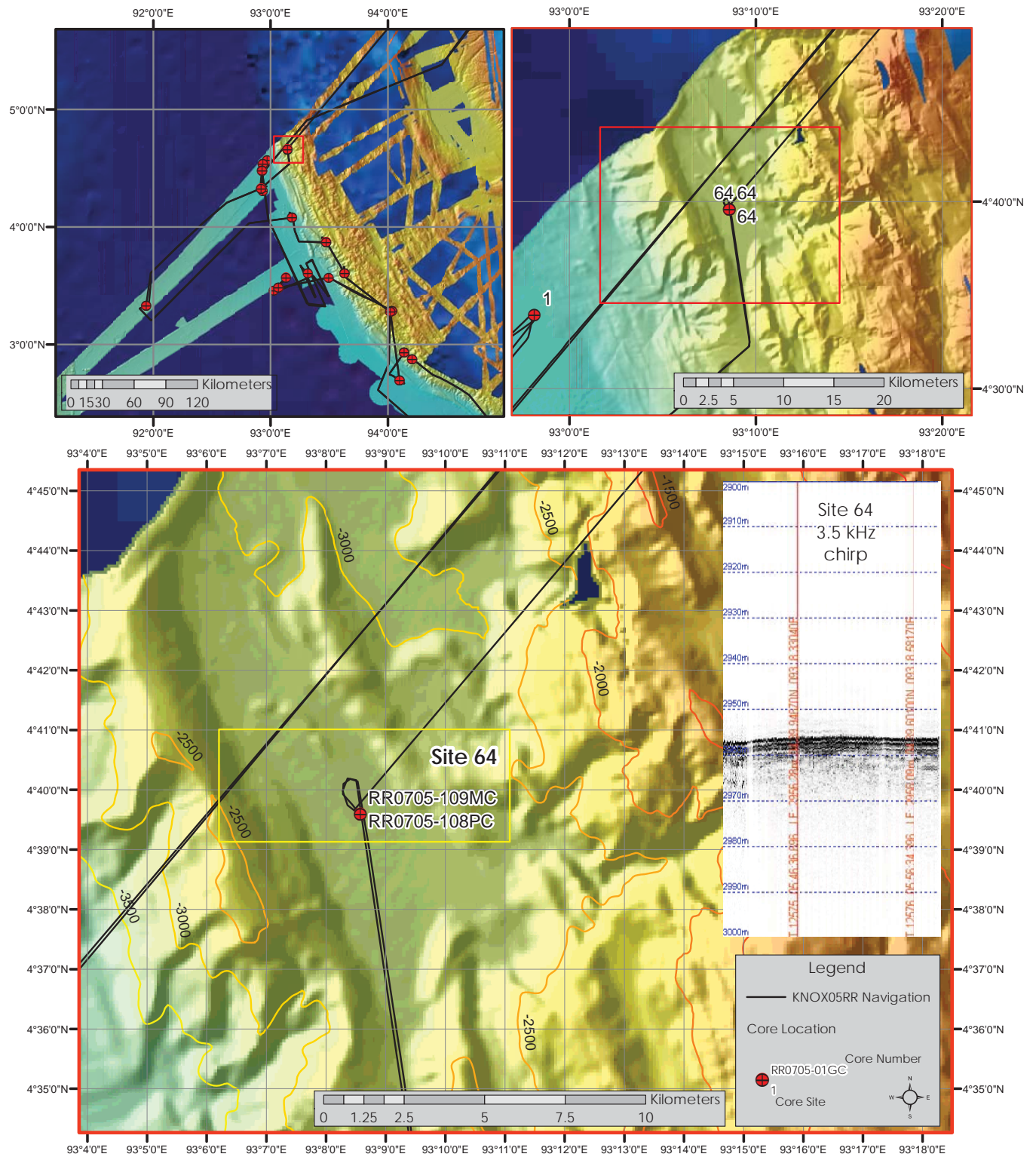


KNOX05RR CORE SITE 63



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
63	RR0705-107TC	Trigger	6/11/07	4.326958	92.91768	4518	1.79	50.5	117.5	11	0
63	RR0705-107PC	Piston	6/11/07	4.326958	92.91768	4518	0.81	50.5	30	-80.5	0

## KNOX05RR CORE SITE 64



Site #	Core #	Type	Date	Latitude	Longitude	Depth	Length	Sec 1 Length (cm)	Sec 2 Length (cm)	Sec 3 Length (cm)	Sec 4 Length (cm)
64	RR0705-108TC	Trigger	6/12/07	4.659805	93.14282	2959	1.28	128	-128	0	0
64	RR0705-108PC	Piston	6/12/07	4.659805	93.14282	2959	3.70	100.5	150.5	118.5	0
64	RR0705-109MC	Multi	6/12/07	4.659805	93.14282	2959	0.06	6.0	0	0	0



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### Appendix 3

## Oblique Site Maps

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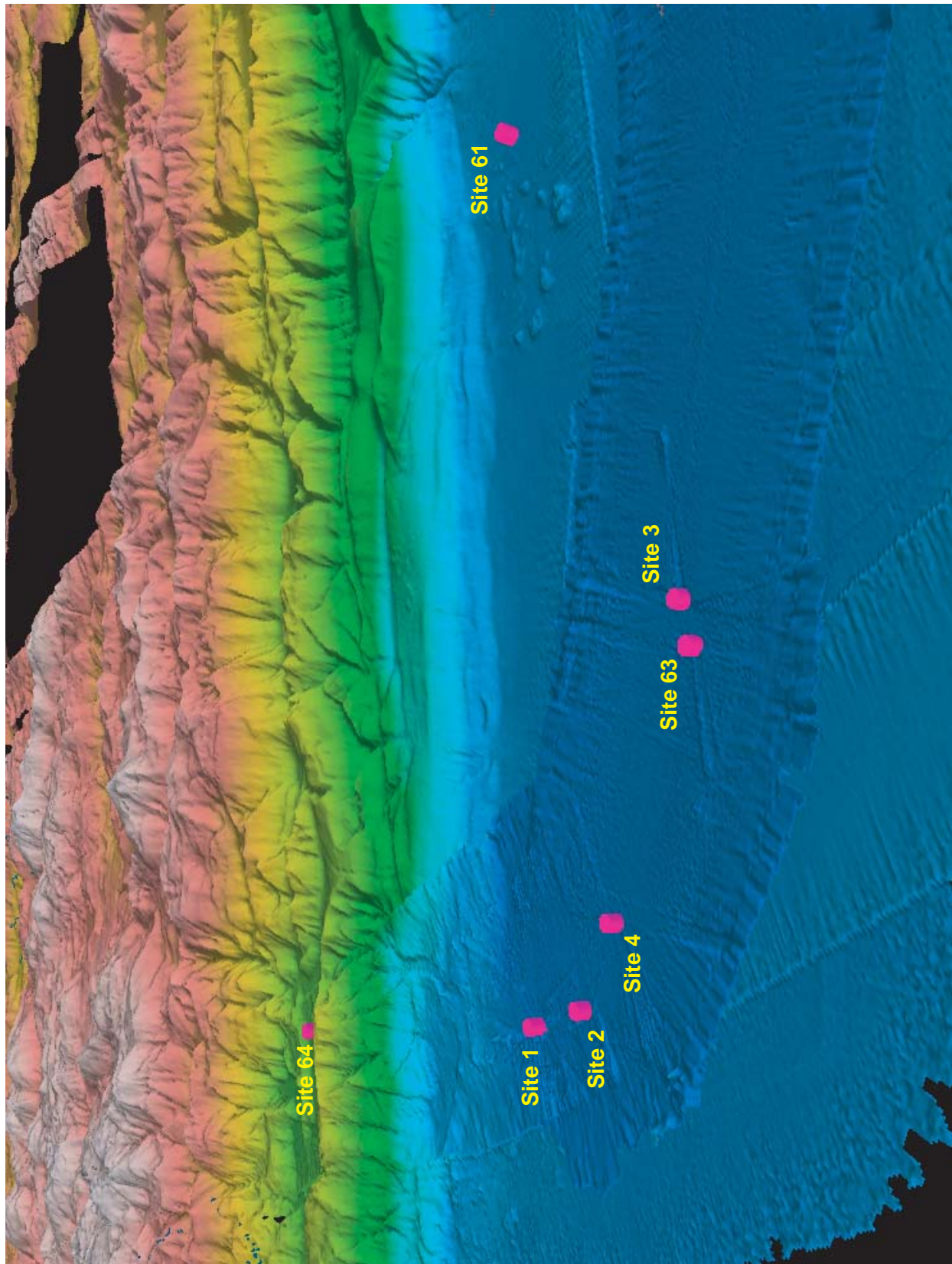


Figure 1. Sites 1-4 and 61, 63 and 64. Cores retrieved by site are as follows - Site 1: RR0705-01GC, Site 2: RR0705-02GC, RR0705-03PC/TC, Site 3: RR0705-04KC, Site 4: RR0705-05PC/TC, RR0705-06KC, RR0705-07MC, Site 61: RR0705-105PC, Site 63: RR0705-107PC/TC, and Site 64: RR0705-108PC/TC, RR0705-109MC.



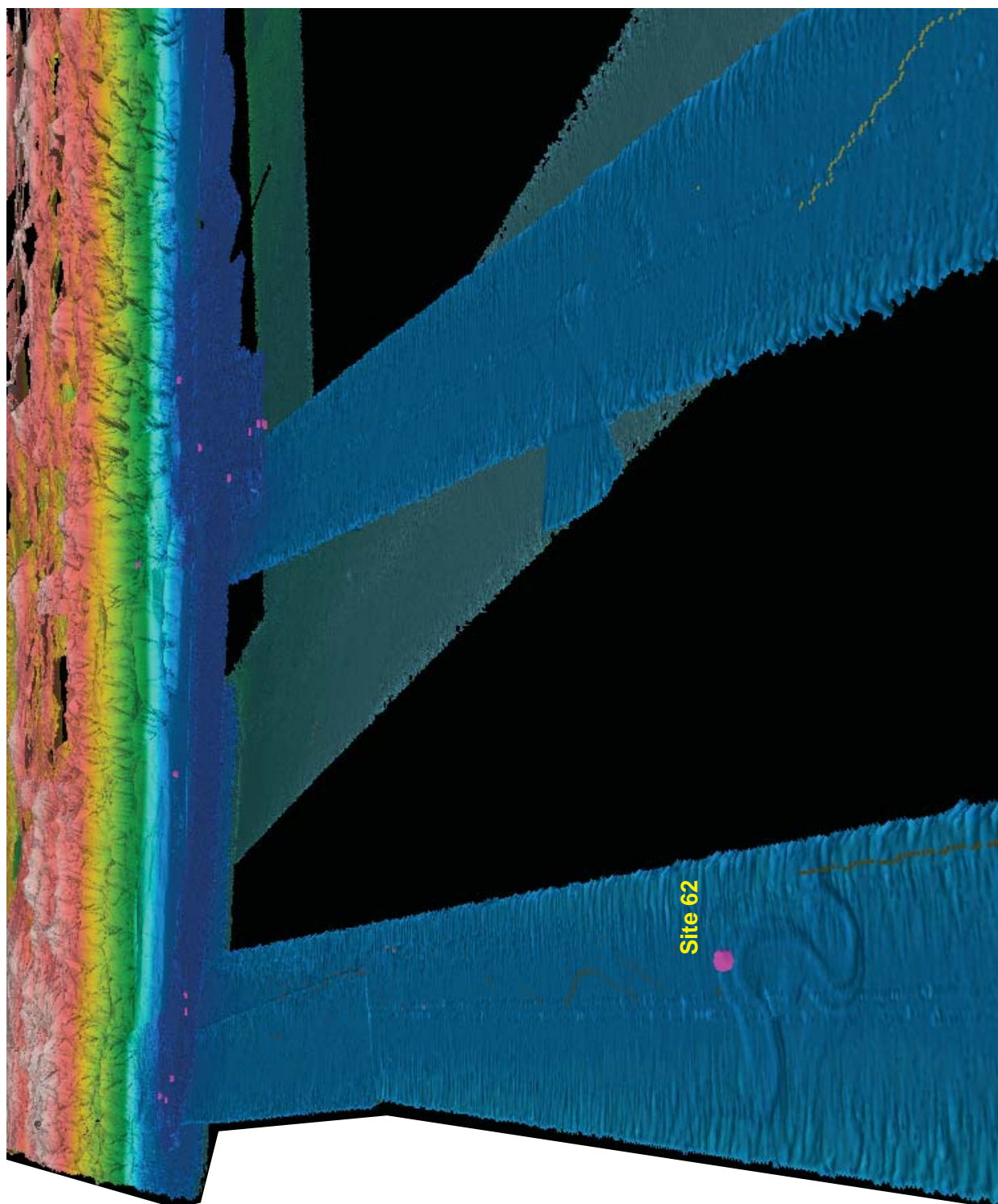


Figure 2. Site 62. RR0705-106PC and RR0705-106TC were retrieved at this site.

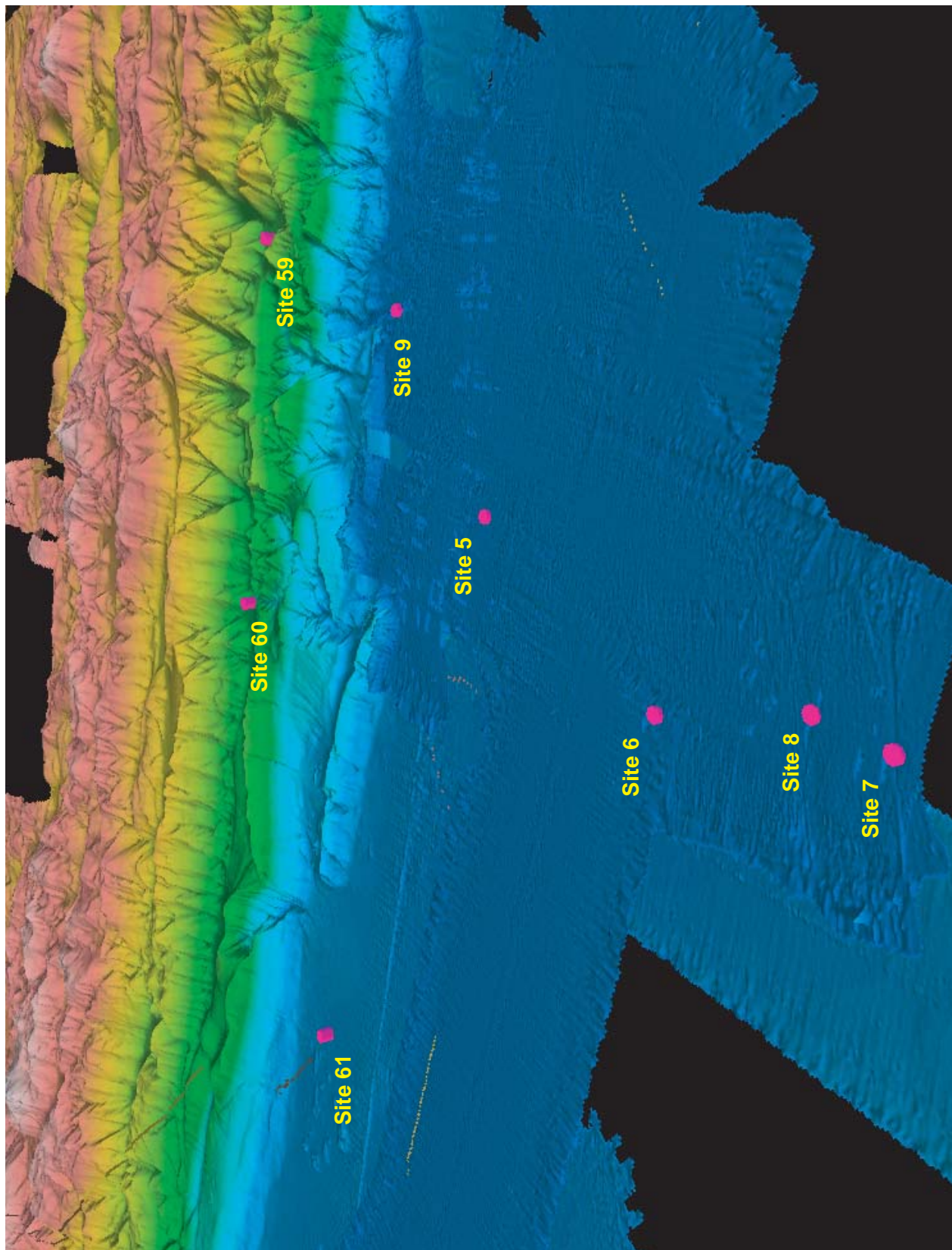


Figure 3. Sites 5-9 and 59-61. Cores retrieved by site are as follows – Site 5: RR0705-08GC, Site 6: RR0705-09GC, Site 7: RR0705-10GC, Site 8: RR0705-11GC, RR0705-12GC, RR0705-13KC, RR0705-14GC, Site 59: RR0705-102MC, RR0705-103PC/TC, Site 60: RR0705-104PC/TC, Site 61: RR0705-105PC/TC.



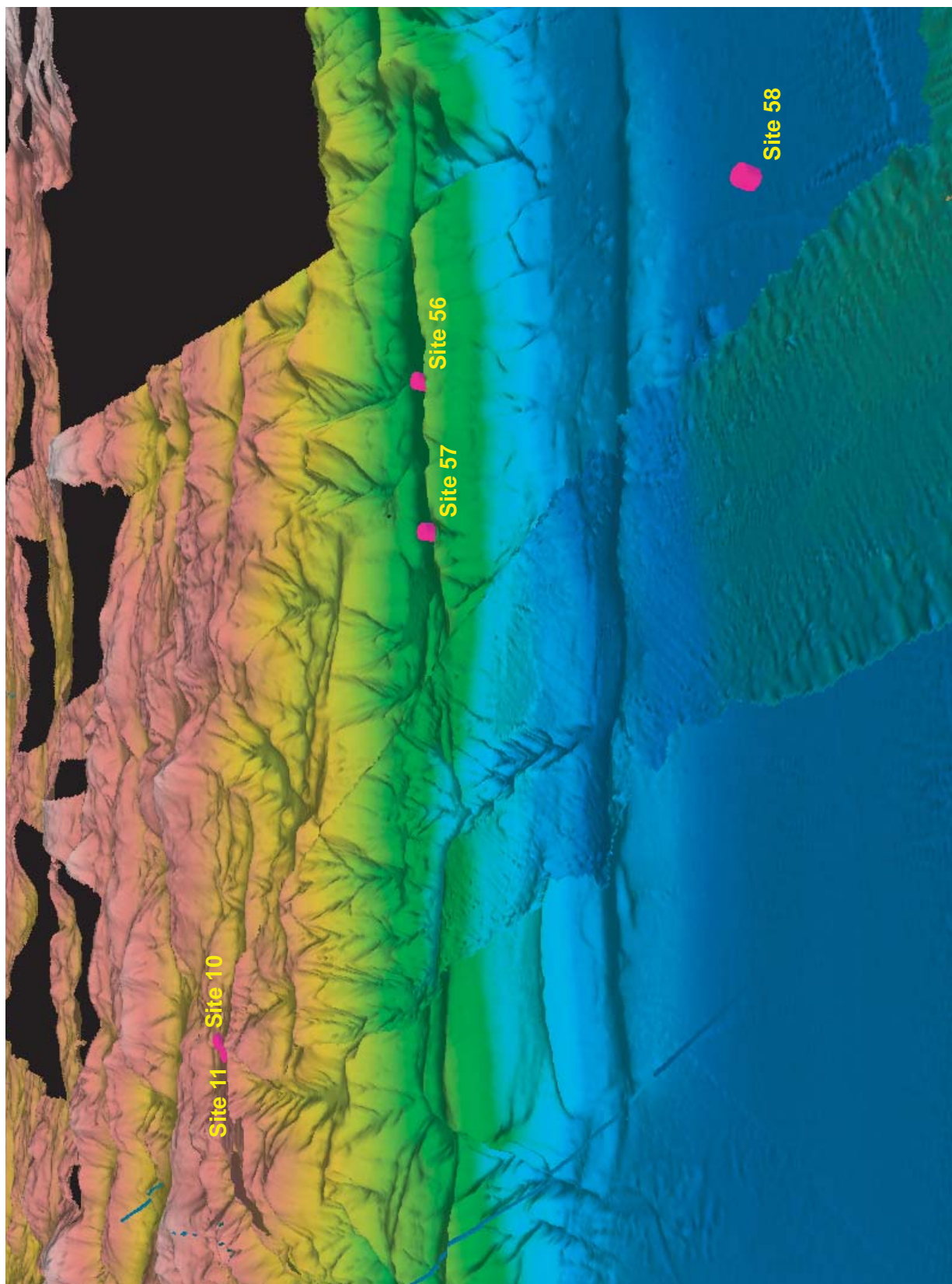


Figure 4. Sites 10-11 and 56-58. Cores retrieved by site are as follows – Site 10: RR0705-15GC, RR0705-16GC, RR0705-17KC, Site 11: RR0705-18GC, RR0705-101GC, RR0705-100MC, Site 56: RR0705-95PC/TC, Site 57: RR0705-96PC/TC, RR0705-97MC, Site 58: RR0705-98PC/TC, RR0705-99MC.

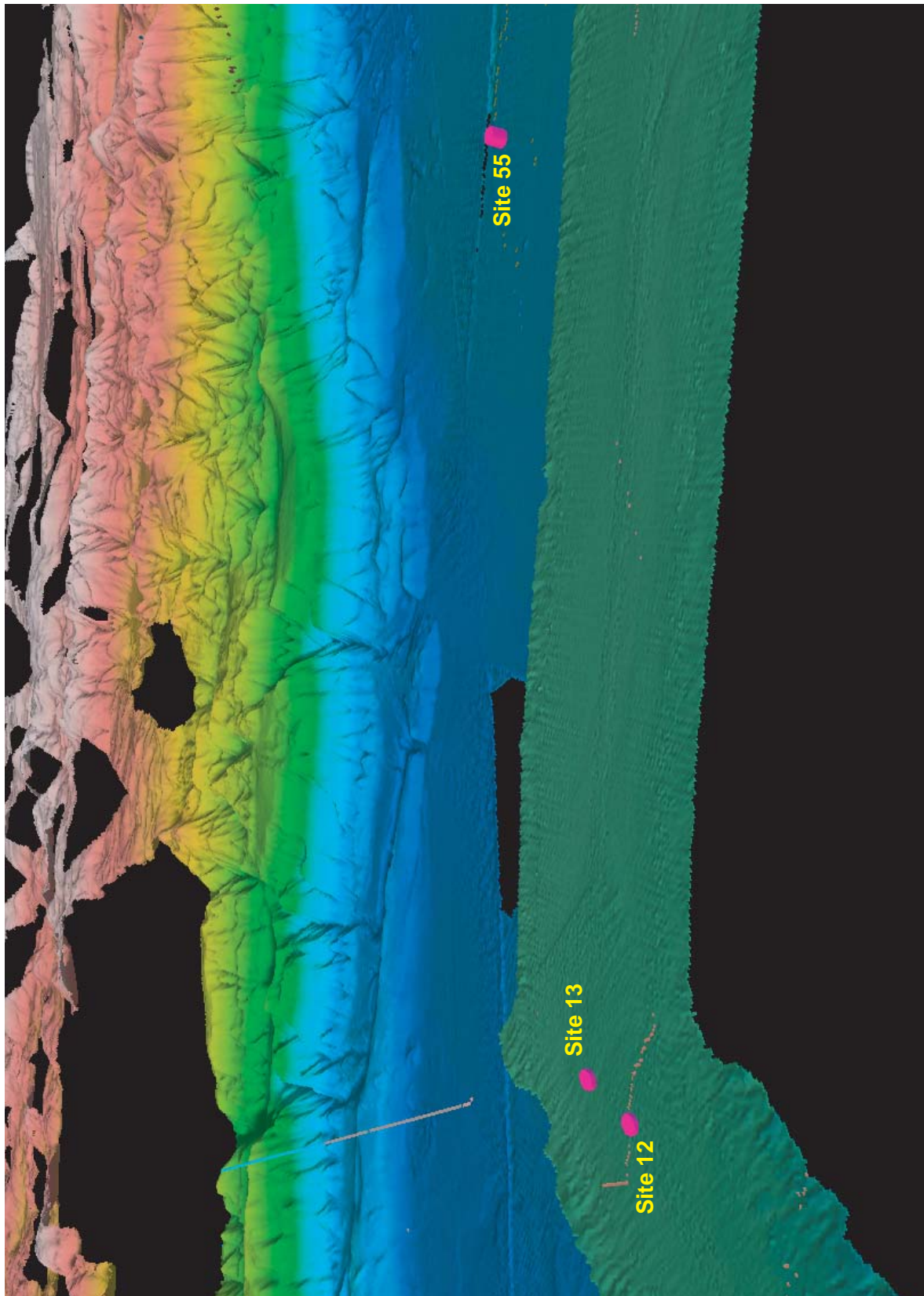


Figure 5. Sites 12-13 and 55. Cores retrieved by site are as follows – Site 12: RR0705-19GC, RR0705-20GC, Site 13: RR0705-21GC, Site 55: RR0705-94PC/TC.



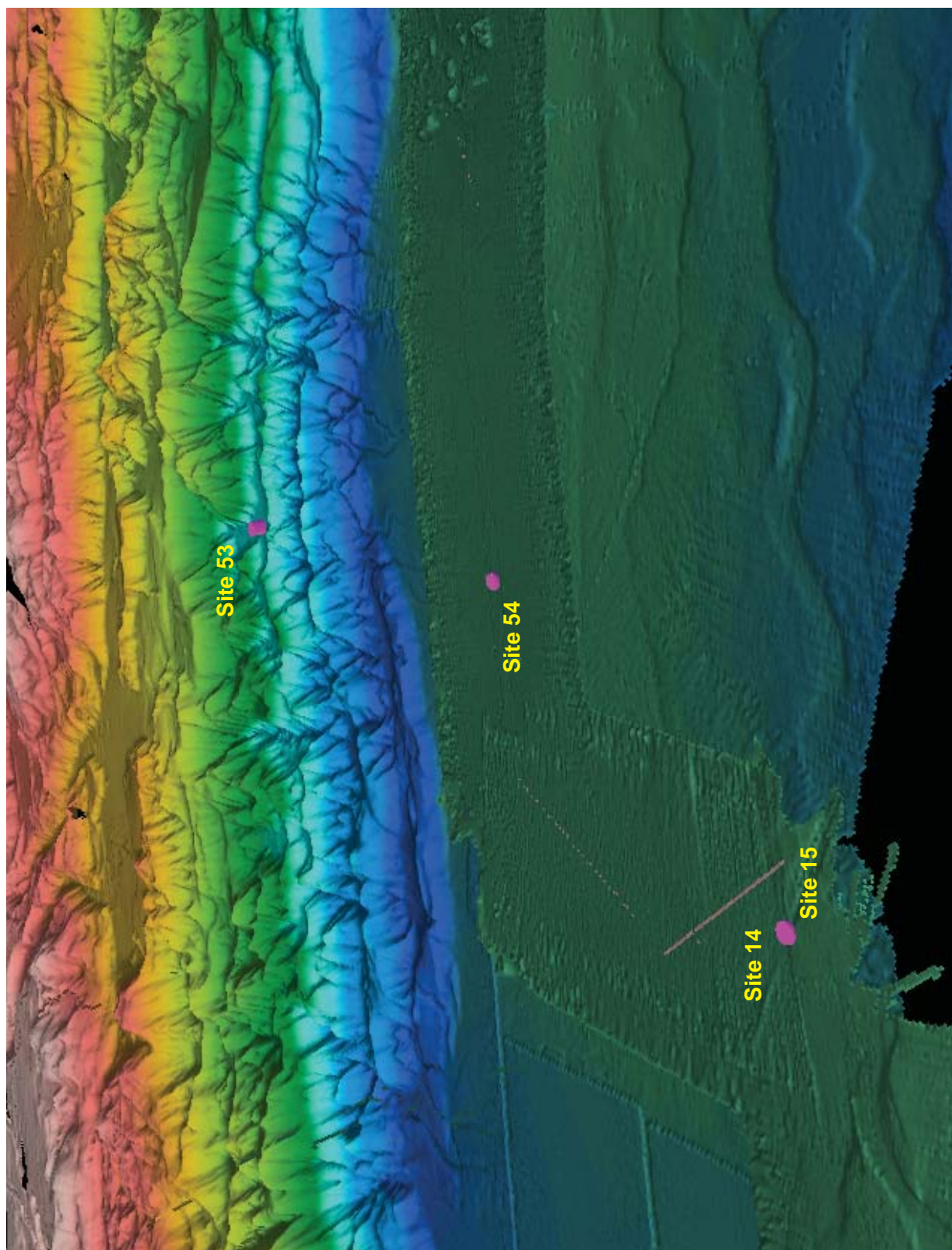


Figure 6. Sites 14-15 and 53 & 54. Cores retrieved by site are as follows – Site 14: RR0705-22GC, RR0705-23GC, Site 15: RR0705-24GC, Site 53: RR0705-91MC, RR0705-92PC/TC, Site 54: RR0705-93PC/TC.

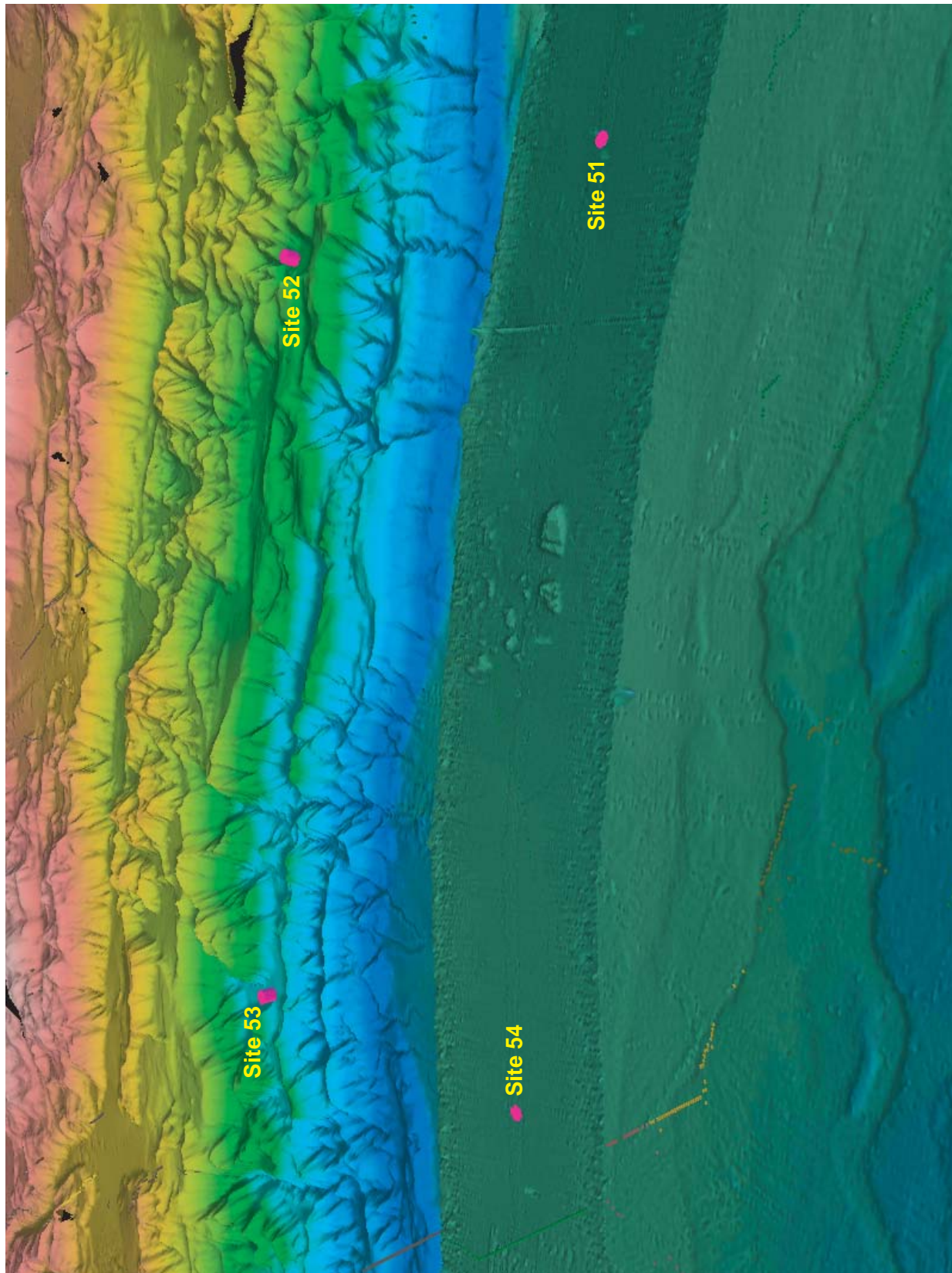


Figure 7. Sites 51-54. Cores retrieved by site are as follows – Site 51: RR0705-88PC/TC, Site 52: RR0705-89pc/tc, RR0705-90MC, Site 53: RR0705-91MC, RR0705-92PC/TC, Site 54: RR0705-93PC/TC.



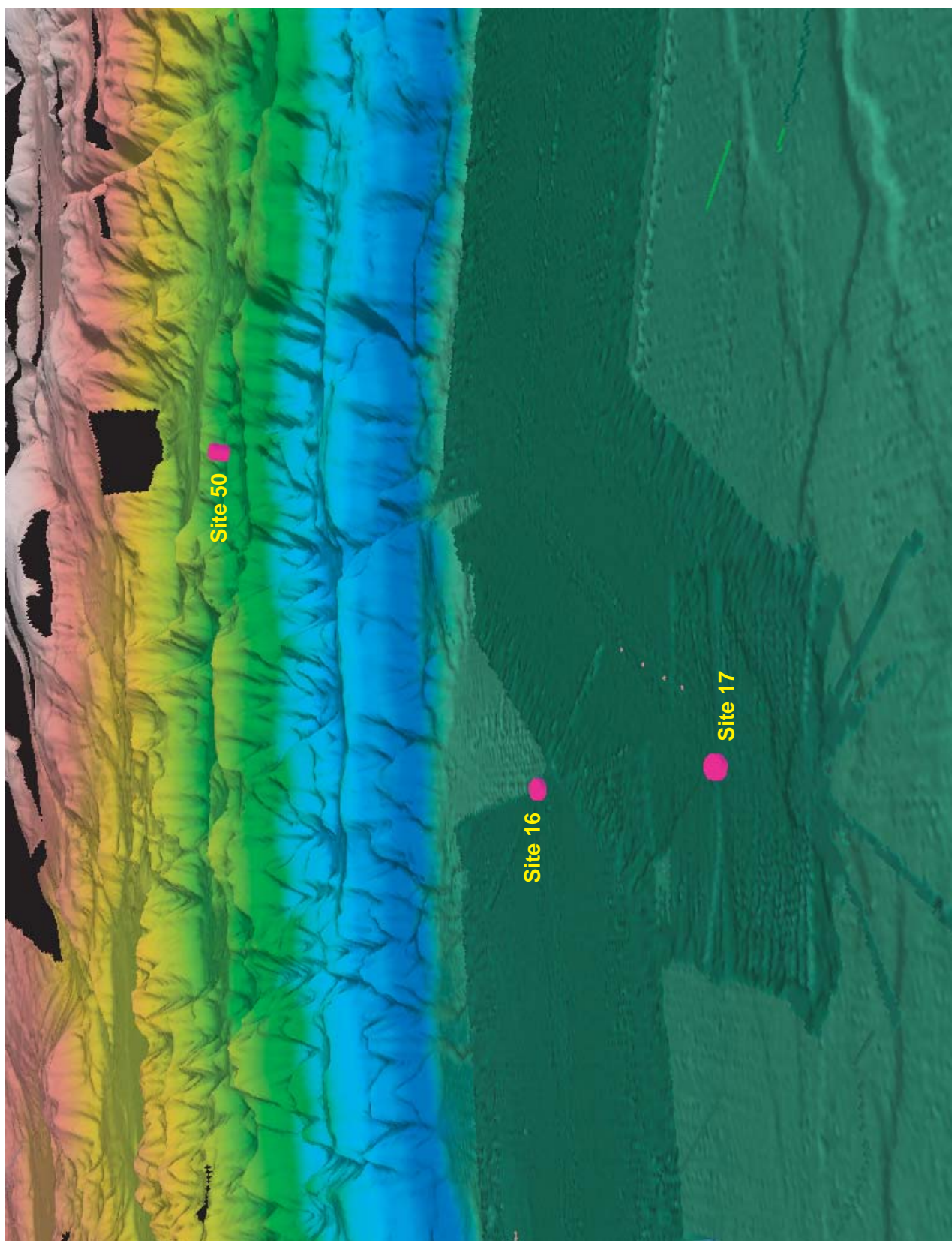


Figure 8. Sites 16-17 and 50. Cores retrieved by site are as follows – Site 16: RR0705-25GC, Site 17: RR0705-26GC, RR0705-27GC, RR0705-87PC/TC, Site 50: RR0705-85PC/TC, RR0705-86MC.

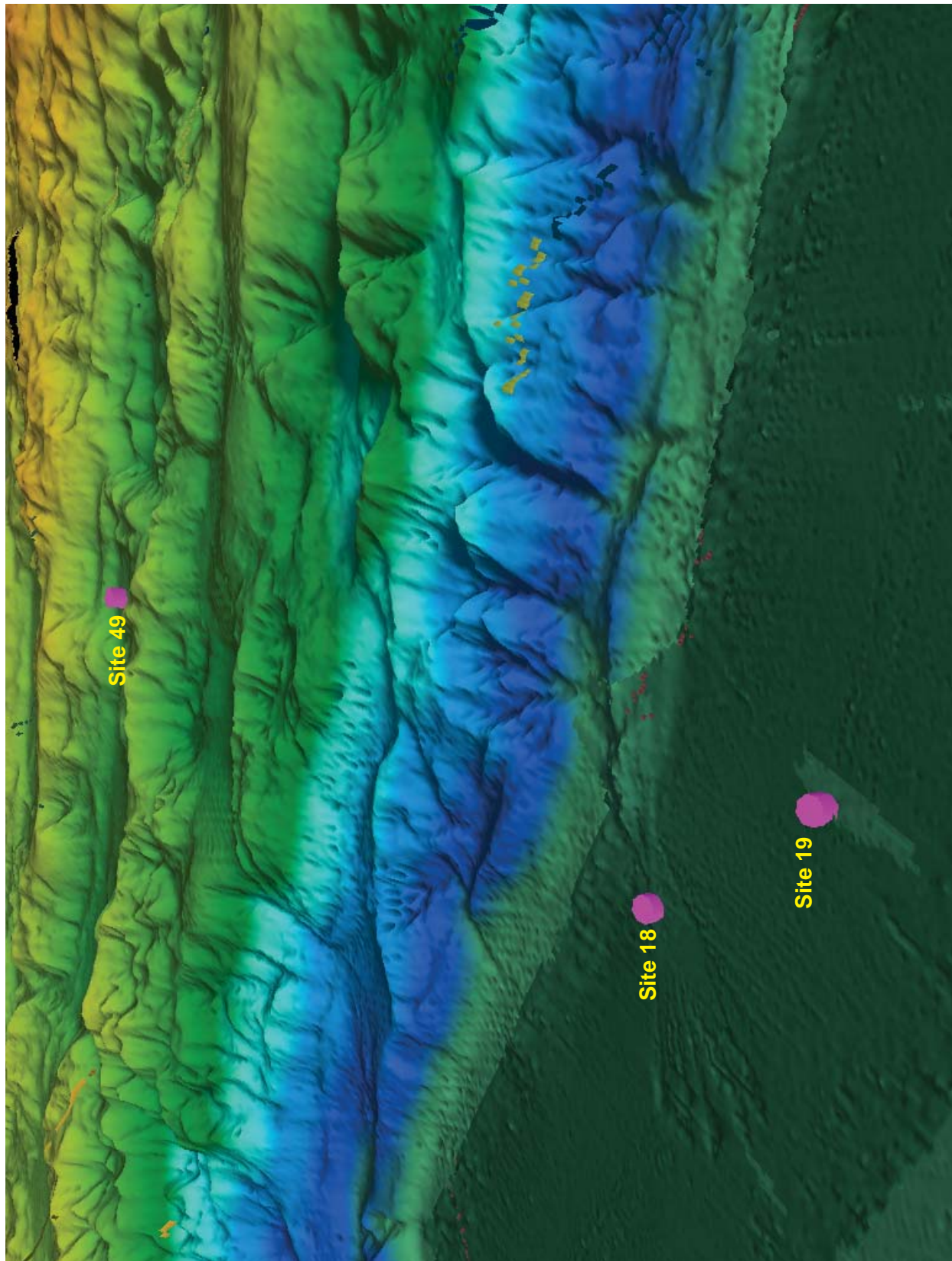


Figure 9. Sites 18-19 and 49. Cores retrieved by site are as follows – Site 18: RR0705-28GC, Site 19: RR0705-29GC, RR0705-30GC, RR0705-84PC/TC, Site 49: RR0705-82MC, RR0705-83PC/TC.



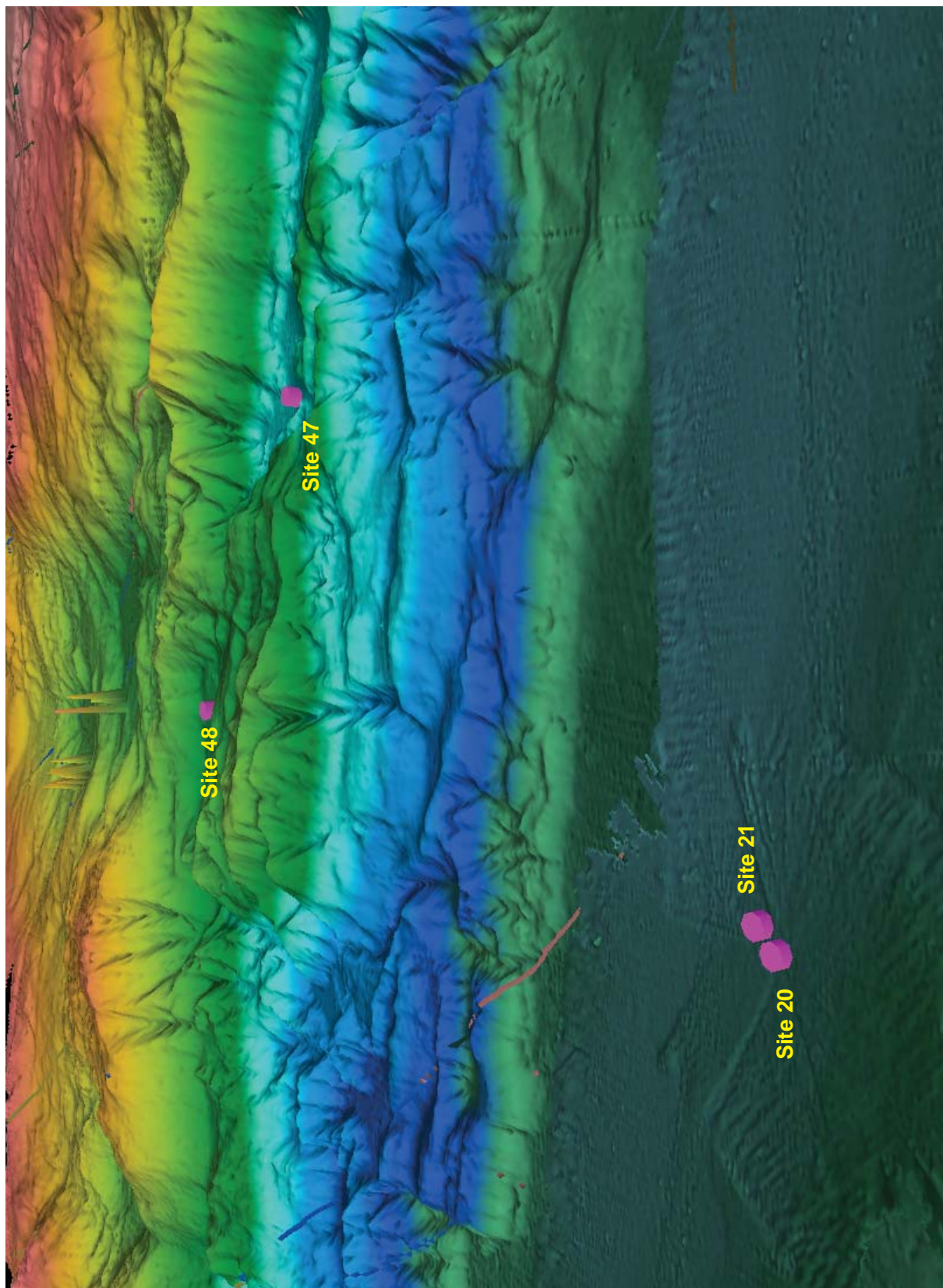


Figure 10. Sites 20-21 and 47-48. Cores retrieved by site are as follows – Site 20: RR0705-31GC, Site 21: RR0705-32GC, Site 47: RR0705-81GC, Site 48: RR0705-79PC/TC, RR0705-80MC.

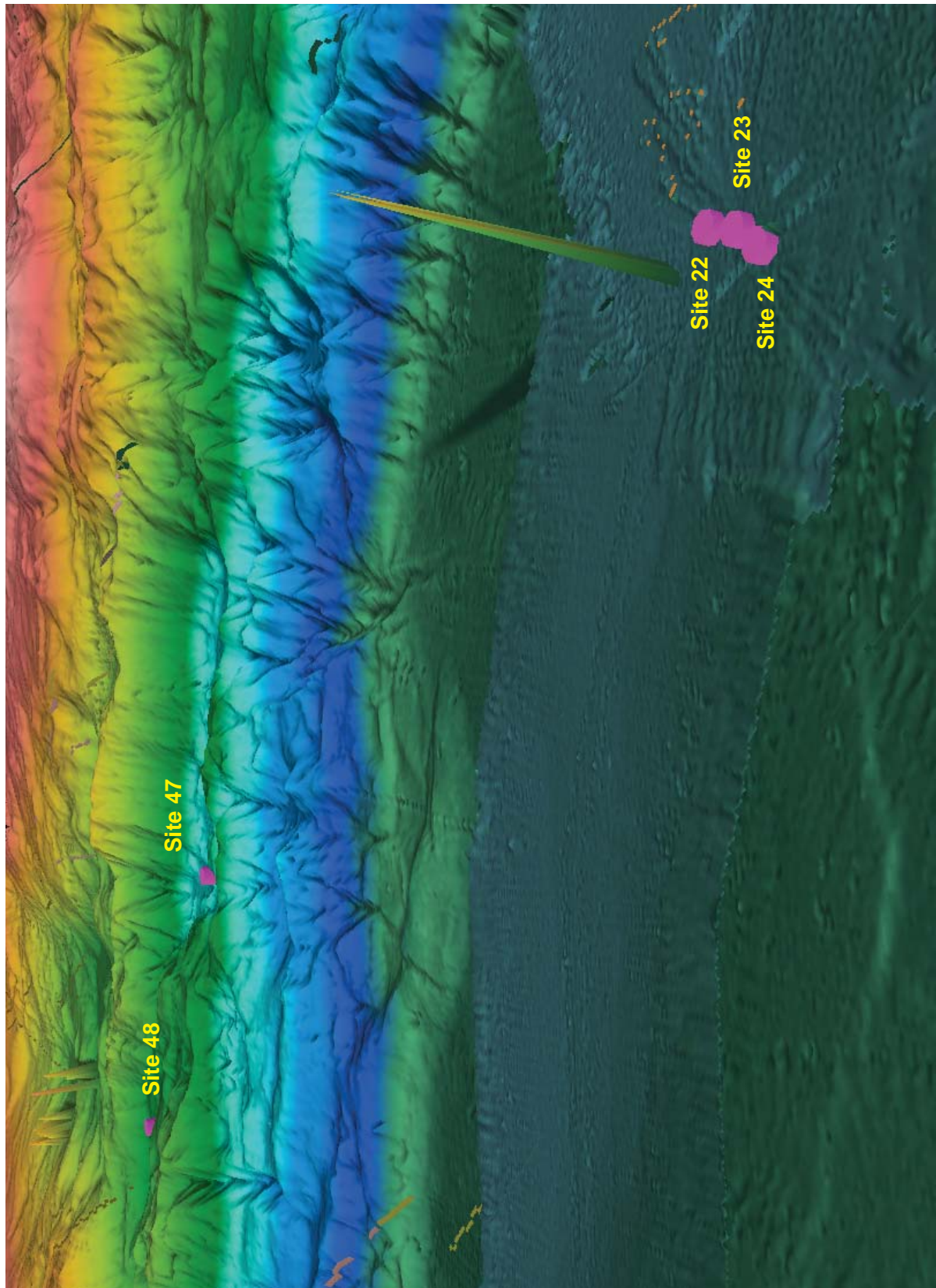


Figure 11. Sites 22-24 and 47-48. Cores retrieved by site are as follows – Site 22: RR0705-33GC, Site 23: RR0705-34GC, Site 24: RR0705-35GC, RR0705-36KC, RR0705-78PC/TC, Site 47: RR0705-81GC, Site 48: RR0705-79PC/TC, RR0705-80MC.



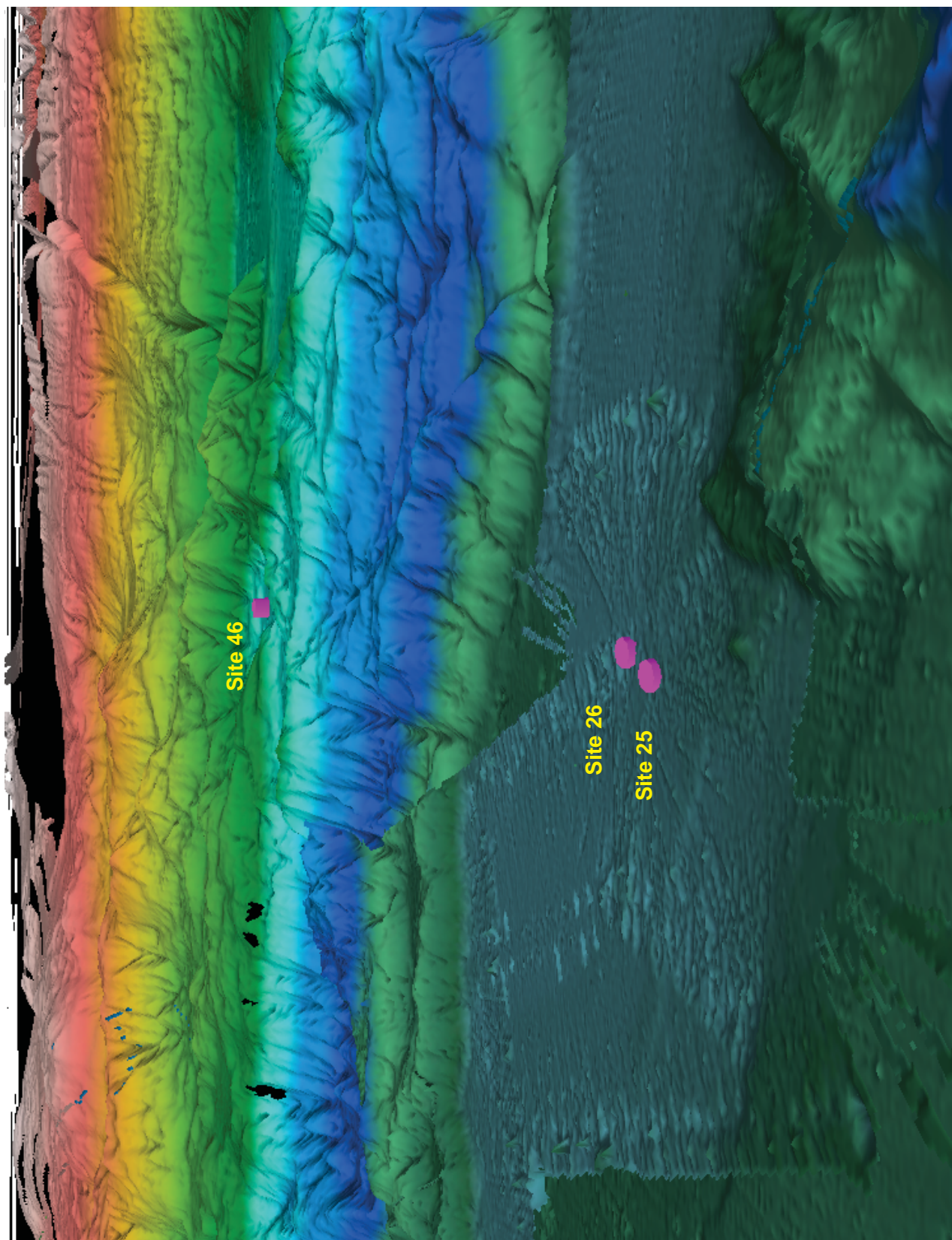


Figure 12. Sites 25-26 and 46. Cores retrieved by site are as follows – Site 25: RR0705-37GC, Site 26: RR0705-38GC, RR0705-39KC, Site 46: RR0705-77PC/TC.



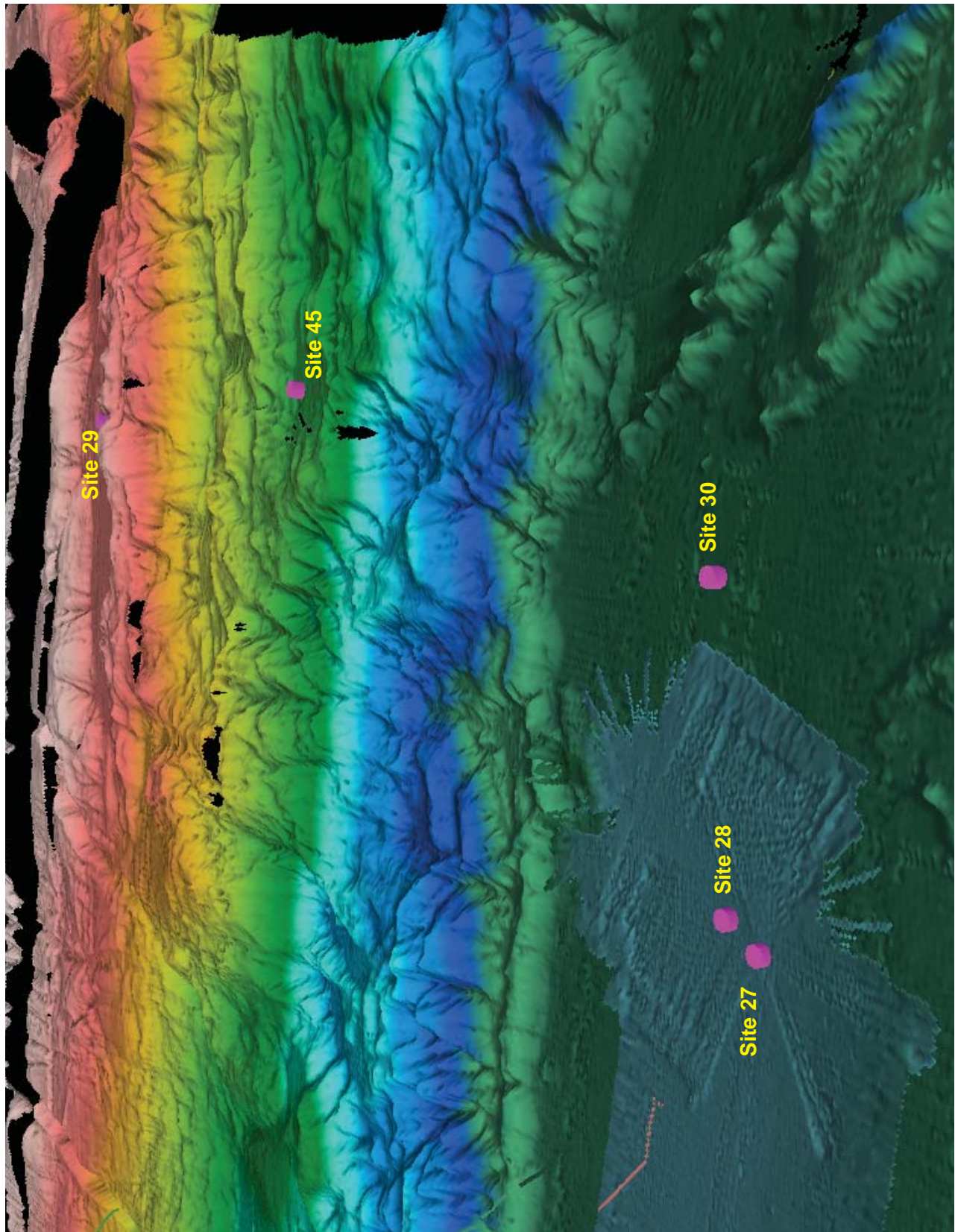


Figure 13. Sites 27-30 and 45. Cores retrieved by site are as follows – Site 27: RR0705-43GC, RR0705-45PC/TC, RR0705-44MC, Site 45: RR0705-81GC, Site 30: RR0705-43GC, RR0705-40GC, Site 28: RR0705-41GC, Site 29: RR0705-42GC, Site



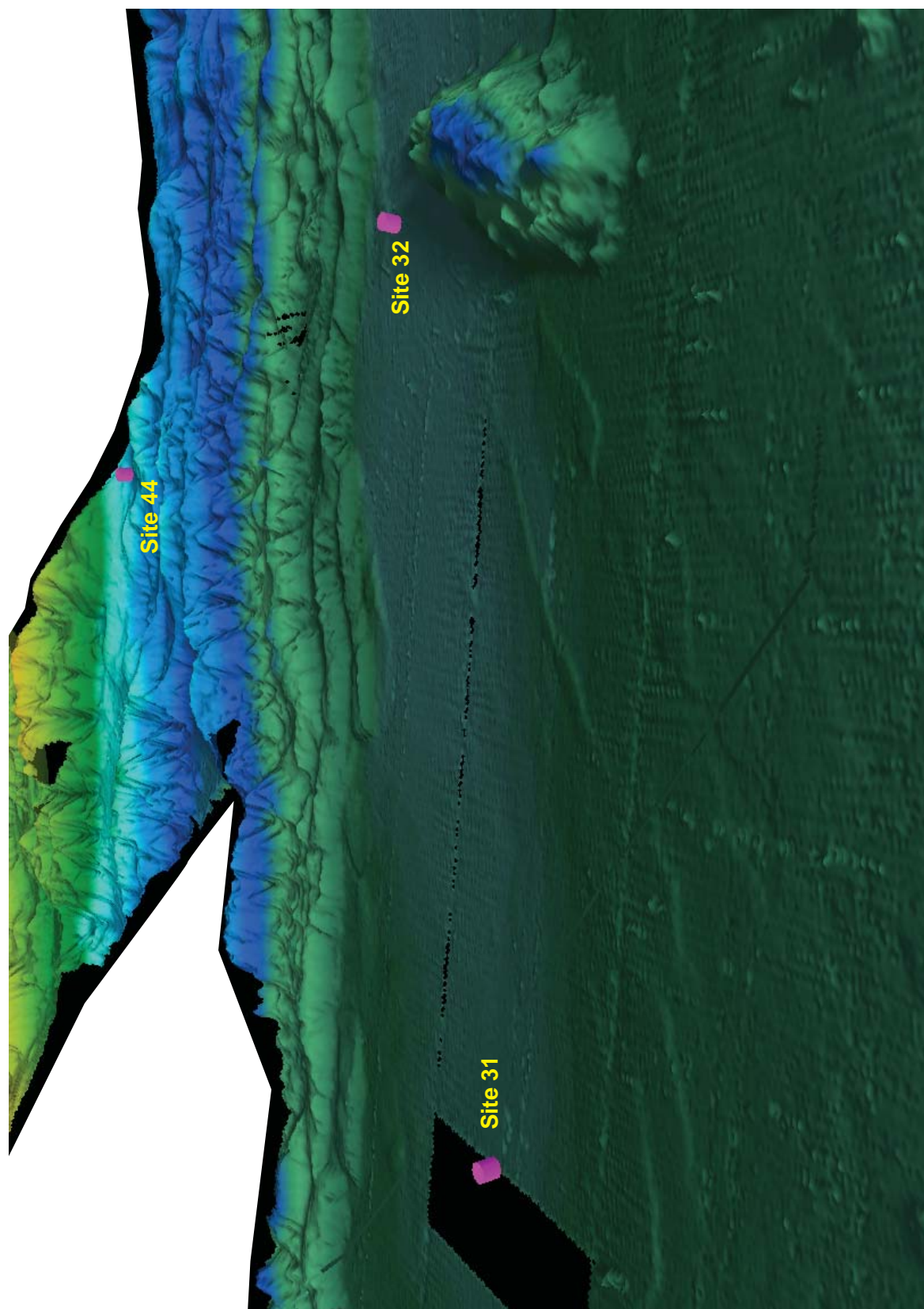


Figure 14. Sites 31-32 and 44. Cores retrieved by site are as follows – Site 31: RR0705-46GC, RR0705-47PC/TC, Site 32: RR0705-48GC, RR0705-49PC/TC, Site 44: RR0705-71GC, RR0705-72PC/TC, RR0705-73MC.

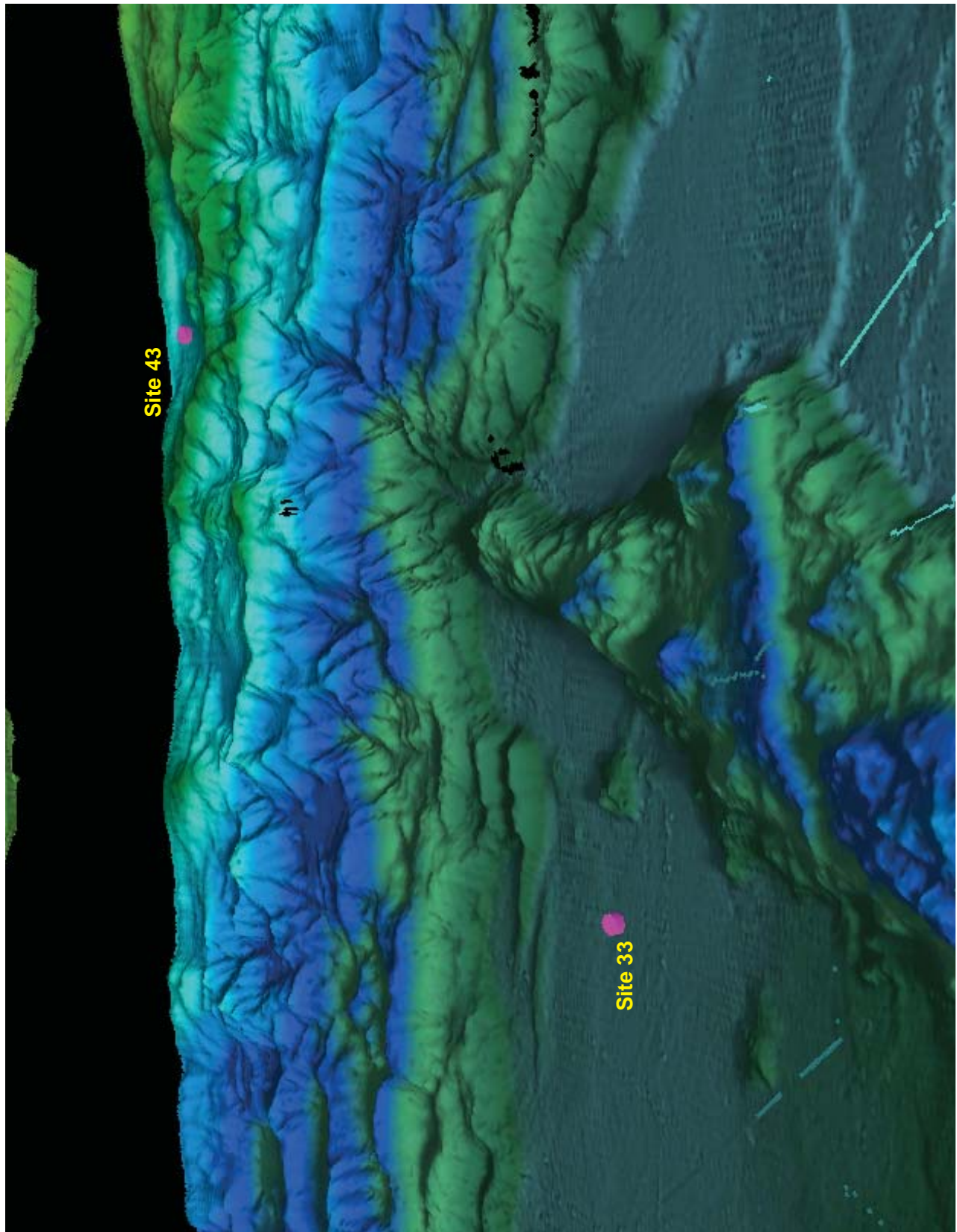


Figure 15. Sites 33 and 43. Cores retrieved by site are as follows – Site 33: RR0705-50GC, RR0705-70PC/TC, Site 43: RR0705-66GC, RR0705-67PC/TC, RR0705-68MC, RR0705-69MC.



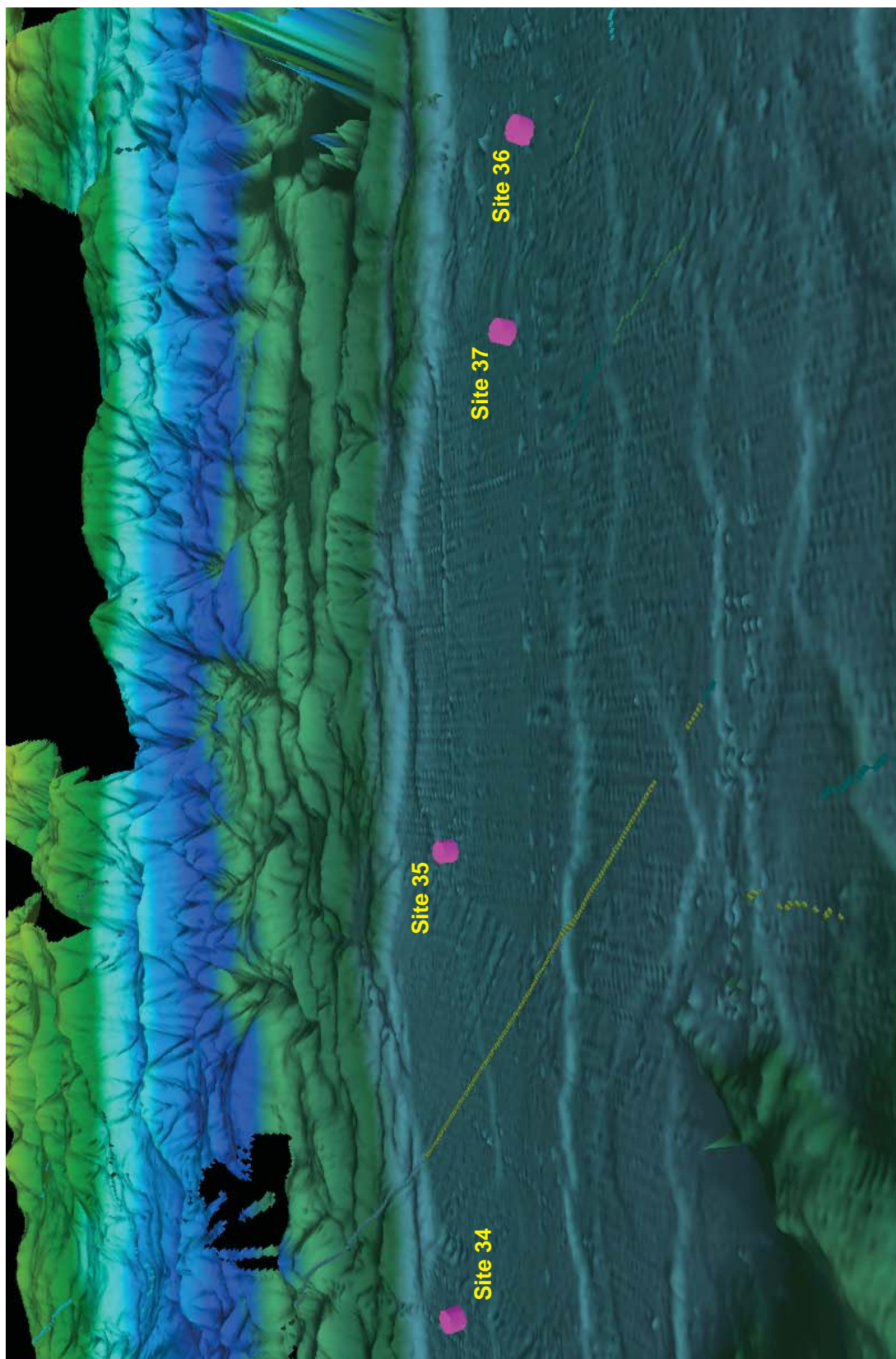


Figure 16. Sites 34-37. Cores retrieved by site are as follows – Site 34: RR0705-51GC, Site 35: RR0705-52GC, Site 36: RR0705-53GC, RR0705-54GC, Site 37: RR0705-55PC/TC.

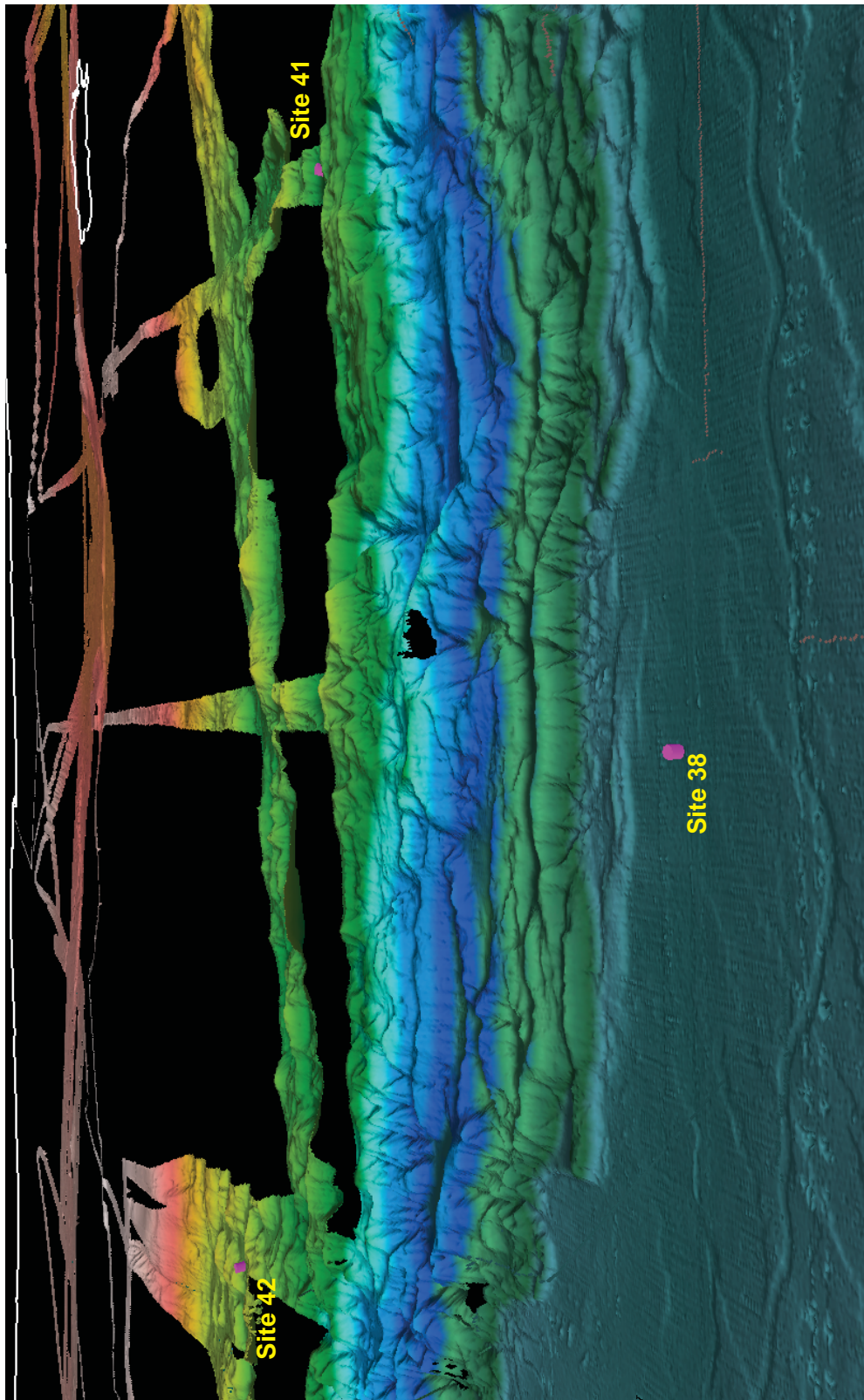


Figure 17. Sites 38 and 41-42. Cores retrieved by site are as follows – Site 38: RR0705-56GC, RR0705-57PC/TC, Site 41: RR0705-62GC, RR0705-63PC/TC, Site 42: RR0705-64GC, RR0705-65PC/TC.



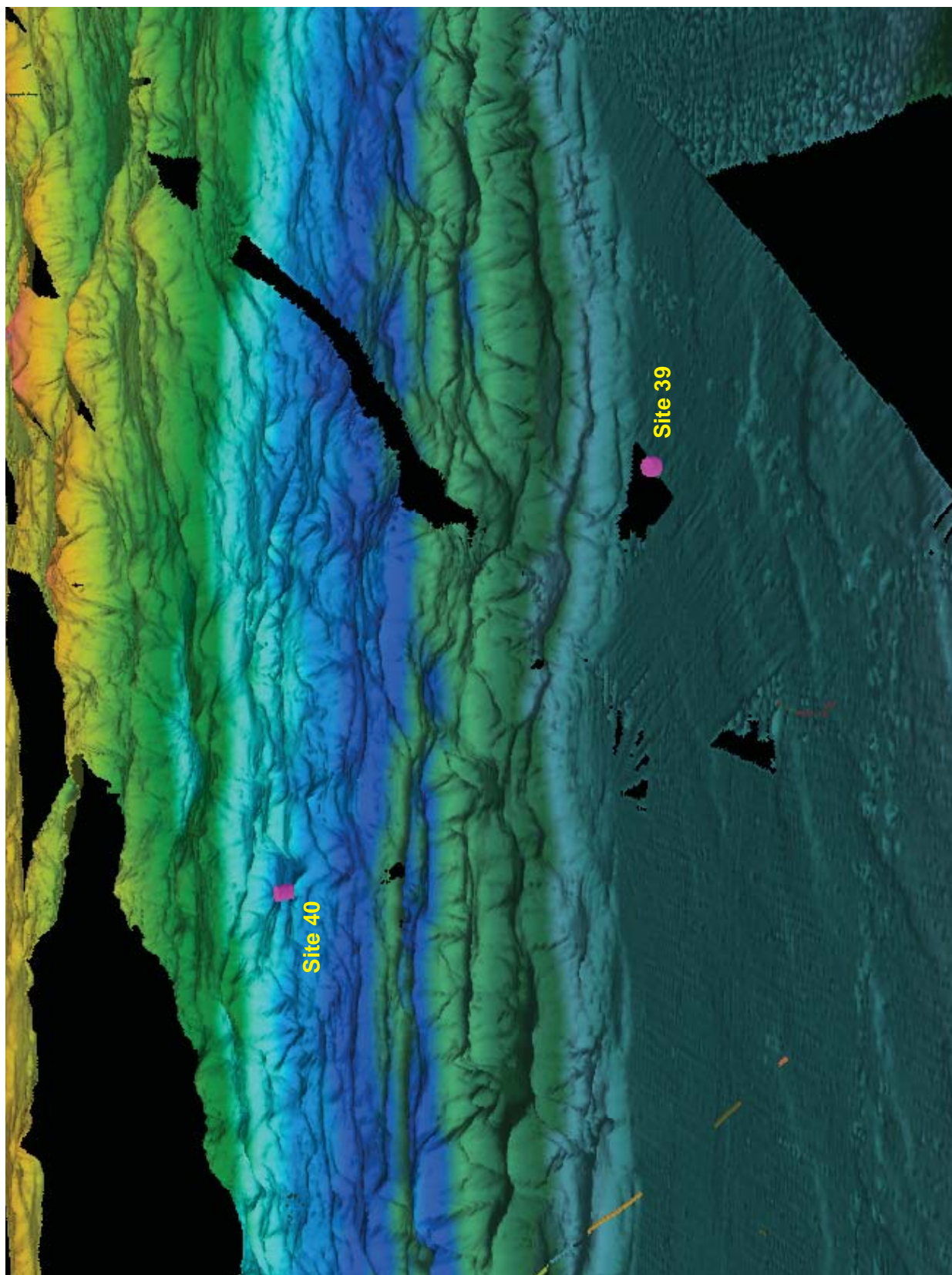


Figure 18. Sites 39-40. Cores retrieved by site are as follows – Site 39: RR0705-58GC, RR0705-59PC/TC, Site 40: RR0705-60GC, RR0705-61PC/TC.