IODP Proposal Cover Sheet

879 - Add 2

Corinth Active Rift Development

Received for:

Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Proponents	Lisa McNeill, Donna Shillington
Keywords	rift development, faults, earthquakes, sedimentation
Area	Corinth Gulf, Greece

Proponent Information

Proponent	Lisa McNeill
Affiliation	University of Southampton
Country	United Kingdom

☑ Permission is granted to post the coversheet/site table on www.iodp.org

Abstract

Continental rifting is fundamental for formation of ocean basins and hydrocarbon-bearing rifted margins, and active rift zones are dynamic regions of high geohazard potential. But much of what we know from the fault to plate scale is poorly constrained and is not resolved at any level of spatial or temporal detail over a complete rift system. We propose drilling within the active Corinth Rift, Greece where deformation rates are high, the syn-rift succession is preserved and accessible, and a dense, seismic database provides a high resolution fault network and seismic stratigraphy for the recent rift history but with limited chronology. In Corinth we can achieve an unprecedented precision of timing and spatial complexity of rift-fault system development and rift-controlled drainage system evolution in the first 1-2Myr of rift history. We propose to resolve at a high temporal and spatial resolution how faults evolve, how strain is (re-)distributed, and how the landscape responds within the first few Myrs in a non-volcanic continental rift, as modulated by Quaternary changes in sea level and climate. High horizontal spatial resolution (1-3km) is provided by a dense grid of seismic profiles offshore that have been recently fully integrated, complemented by extensive outcrops onshore. High temporal resolution (~20-50ka) will be provided by seismic stratigraphy tied to core and log data from three carefully located boreholes to sample the recent syn-rift sequence. Two primary themes are addressed by the proposed drilling integrated with the seismic database and onshore data. First, fault and rift evolutionary history (including fault growth, strain localization and rift propagation) and deformation rates: the spatial scales and relative timing can already be determined within the seismic data offshore. Dating of drill core will provide the absolute timing offshore, the temporal correlation to the onshore and the ability to quantify strain rates. Second, the response of drainage evolution and sediment supply to rift and fault evolution: core data will define lithologies, depositional systems and paleoenvironment, including catchment paleo-climate, basin paleobathymetry, and relative sea level. Integrated with seismic data, onshore stratigraphy and catchment data, we will investigate relative roles and feedbacks between tectonics, climate and eustasy in sediment flux and basin evolution. A multidisciplinary approach to core sampling integrated with log and seismic data will generate a Quaternary chronology for the syn-rift stratigraphy down to orbital timescale resolutions and resolve the paleoenvironmental history of the basin in order to address our objectives.

Generated: 2017-08-18T10:47:52+00:00

879 - Add 2

Scientific Objectives

We propose three drillsites in the offshore Corinth Rift in order to resolve the syn-rift chronology and paleoenvironment and integrate this with an existing seismic database and onshore stratigraphy to address the following objectives:
1. Fault and rift structural evolution in an active continental rift: To establish the distribution of tectonic strain in time and space and the timescales of fault evolution in a young rift at high resolution (20-50kyr and 1-10's of kms).
We will determine the growth and development of a rift-scale normal fault network, timescales of segmentation establishment, basin evolution in terms of strain localization, rift propagation and migration, and the impact of crustal structure and composition on strain rate and distribution. What are the controlling parameters on strain localization? How and when does a "mature" fault network emerge?
2. Surface processes in active rifts: To determine the evolution of a rift-controlled, closed drainage system in time and space at high temporal resolution (20-50kyr) and the relative impact of tectonics and climate on sediment flux.
What are the relative contributions of millennial to orbital periodicity Quaternary climate fluctuations (global and regional) and fault activity/ rift evolution in controlling the supply of sediment into a rift basin? We will assess changes in sediment flux at a range of timescales, and determine the response to fault birth, death and migration, rift flank uplift, and changes in strain rate (tectonic forcing) in terms of sediment supply and the feedbacks between erosion, sediment transport and deposition and tectonic processes.

Non-standard measurements technology needed to achieve the proposed scientific objectives

879 - Add 2

Proposed Sites (Total proposed sites: 6; pri: 3; alt: 3; N/S: 0)

Site Name	Position (Lat, Lon)	Water Depth (m)	Penetration (m)			Brief Site-specific Objectives
			Sed	Bsm	Total	
COR-01A (Primary)	38.15840087 22.69536544	852	750	0	750	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine hemipelagic-gravity flow deposits), and underlying unconformity to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence; Determine nature and age of regional unconformity and change in age and environment across the unconformity; Utilise chronostratigraphy to analyse fault and rift development and sediment flux history by core-log-seismic integration.
COR-02A (Primary)	38.1440905 22.75840508	862	750	0	750	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to:Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-03); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
COR-03B (Alternate)	38.11740647 23.10622823	347	717	10	727	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-02); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
COR-04B (Primary)	38.12008304 23.08627505	365	469	10	479	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to:Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-02); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
COR-05B (Alternate)	38.28004101 22.41106702	529	750	0	750	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-03); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
COR-06A (Alternate)	38.17666707 22.71827271	861	750	0	750	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine hemipelagic-gravity flow deposits), and underlying unconformity to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence; Determine nature and age of regional unconformity and change in age and environment across the unconformity; Utilise chronostratigraphy to analyse fault and rift development and sediment flux history by core-log-seismic integration.

879 - Add 2

Contact Information

Contact Person:	Lisa McNeill
Department:	Ocean and Earth Science, NOCS
Organization:	University of Southampton
Address:	European Way Southampton Hampshire SO31 5DA United Kingdom
E-mail/Phone:	lcmn@noc.soton.ac.uk; Phone: 44 2380593640

Proponent List

First Name	Last Name	Affiliation	Country	Role	Expertise
Lisa	McNeill	University of Southampton	United Kingdom	Principal Lead and Data Lead	Co-Chief Scientist, rifting, earthquake hazards
Donna	Shillington	LDEO	United States	Other Lead	Co-chief scientist, geophysics

Addendum 2 to Proposal 879, Expedition 381

Drilling the Corinth Rift: Resolving the detail of active rift development

This Addendum includes information about all Primary and Alternate Sites for Expedition 381.

3 of the sites are shifted in response to comments from EPSP (new site names: COR-03B, COR-04B, COR-05B).

EPSP, SEP and the proponents/Co-chiefs had noticed discrepancies between different location information provided for the original sites (some 10's m different and in some cases up to 200m). We have been working on this issue and have recently been able to successfully resolve it (details below). The Table below shows the new and correct locations for each site (red line for each site).

We discovered that the segy files and the seismic navigation files used for the planning did not contain correct CDP locations. We have therefore returned to earlier versions of the segy files where we confidently see the source, receiver and CDP locations in the trace headers and can therefore extract the CDP locations. We have compared these segy files with the ones we used for interpretation and can confirm that they are identical in terms of CDP position along the profiles. Therefore the position on the seismic line of each site is unchanged in terms of EPSP's analysis. The horizontal shifts are 10's m (<100 m) from previous location but the seafloor is relatively flat around each of the sites and no seafloor issues were raised by EPSP. EPSP has given an OK to all of these changes (email from Barry Katz, August 17th, 2017).

Details of all the new site locations (those shifted by EPSP, and those not shifted but changing location slightly due to the correction above) are included in the Table below. This shows original locations (black) and current location for each site (red).

Corrected site form information has been submitted within this Addendum for all 6 primary and alternate sites.

Lisa McNeill, Donna Shillington
Co-Chief Scientists, Expedition 381

Table of site information, Expedition 381 (Proposal 879)

Site	Primary Line number	CDP	Location	Water depth (m)	Primary/ Alternate	Actual estimated depth, bottom of hole (m)*	Requested depth for approval	EPSP approval status
COR-01	41	452	38.157667, 22.69553107	852	Primary	750	950	
COR-01A	41	452	38.15840087 22.69536544			750	950	Approved (unchanged)
COR-02	42	659	38.143371, 22.75829082	862	Primary	750	950	
COR-02A	42	659	38.1440905 22.75840508			750	950	Approved (unchanged)
COR-03	22	1626	38.116703, 23.11124953	347	Alternate	740	Basement + 10 m	
COR-03B	22	1615	38.11740647 23.10622823			727 (717+10)	Basement + 10 m	Approved (shifted site)
COR-04	22	1558	38.116277, 23.08924636	365	Primary	480	Basement + 10 m	
COR-04B	22	1544	38.12008304 23.08627505			479 (469+10)	Basement + 10 m	Approved (shifted site)
COR-05A	16	596	38.2811, 22.4108	592	Alternate	750	950	
COR-05B	16	588	38.28004101 22.41106702			750	950	Approved (shifted site)
COR-06A	36	460	38.1758, 22.7183	861	Alternate	750	950	
COR-06A	36	460	38.17666707 22.71827271			750	950	Approved (unchanged)

*Estimated depth includes +10 m basement, where relevant.
Final site information in red – includes sites shifted based on EPSP, plus gives corrected locations for all sites (see above).

IODP Site Forms

Form 1 – General Site Information

879 - Add 2

Section A: Proposal Information

Proposal Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Date Form Submitted	
Site-Specific Objectives with Priority (Must include general objectives in proposal)	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine hemipelagic-gravity flow deposits), and underlying unconformity to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence; Determine nature and age of regional unconformity and change in age and environment across the unconformity; Utilise chronostratigraphy to analyse fault and rift development and sediment flux history by core-log-seismic integration.
List Previous Drilling in Area	

Section B: General Site Information

Site Name:	COR-01A	Area or Location:	Corinth Gulf, Greece
If site is a reoccupation of an old DSDP/ODP Site, Please include former Site#		Jurisdiction:	Greece
Latitude:	Deg: 38.15840087	Distance to Land: (km)	10
Longitude:	Deg: 22.69536544		
Coordinate System:	WGS 84		
Priority of Site:	Primary: ✓ Alternate: ☐	Water Depth (m):	852

Generated: 2017-08-18T10:47:52+00:00

Section C: Operational Information

	Sediments	Basement
Proposed Penetration (m):	750	0
Total Sediment Thickness (m)	1060	
Total Penetration (m):	750	

General Lithologies: Hemipelagic, gravity flow and fluvial muds, silts, sands, possible gravels at depth

Triassic-Paleogene carbonate expected

Coring Plan: (Specify or check)

APC ☑ XCB ☐ RCB ☑ Re-entry ☐ PCS ☐

Wireline Logging Plan:

Standard Measurements		Special Tools		
WL	☑	Magnetic Susceptibility	☑	Other tools:
Porosity	☑	Borehole Temperature	☑	
Density	☐	Formation Image (Acoustic)	☑	
Gamma Ray	☑	VSP (walkaway)	☐	
Resistivity	☑	LWD	☐	
Sonic (Δt)	☑			
Formation Image (Res)	☑			
VSP (zero offset)	☐			
Formation Temperature & Pressure	☐			

Other Measurements:

Estimated Days: Drilling/Coring: 20.4 | Logging: 3 | Total On-site: 23.4

Observatory Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Potential Hazards/ Weather:

Shallow Gas ☐	Complicated Seabed Condition ☐	Hydrothermal Activity ☐	Preferred weather window
Hydrocarbon ☐	Soft Seabed ☐	Landslide and Turbidity Current ☐	Relatively sheltered basin, therefore flexible
Shallow Water Flow ☐	Currents ☐	Gas Hydrate ☐	
Abnormal Pressure ☐	Fracture Zone ☐	Diapir and Mud Volcano ☐	
Man-made Objects (e.g., sea-floor cables, dump sites) ☐	Fault ☐	High Temperature ☐	
H_2S ☐	High Dip Angle ☐	Ice Conditions ☐	
CO_2 ☐			

Sensitive marine habitat (e.g., reefs, vents)

Other:

IODP Site Forms

Form 2 - Site Survey Detail

Proposal #: 879 - Add 2	Site #: COR-01A	Date Form Submitted:

Data Type	In SSDB	Details of available data and data that are still to be collected
1a High resolution seismic reflection (primary)		
1b High resolution seismic seismic reflection (crossing)		
2a Deep penetration seismic reflection (primary)	yes	Line: Ewing MCS Line 41 Position: CDP 452
2b Deep penetration seismic reflection (crossing)	yes	Line: Ewing MCS Line 18 Position: CDP 864
3 Seismic Velocity	yes	Details of seismic velocity data available and velocity-depth profile applied here
4 Seismic Grid		
5a Refraction (surface)		
5b Refraction (bottom)		
6 3.5 kHz	yes	Shipboard 3.5kHz from Ewing profiles
7 Swath bathymetry	yes	HCMR Seabeam 2120 data for site
8a Side looking sonar (surface)		
8b Side looking sonar (bottom)		
9 Photography or video		
10 Heat Flow		
11a Magnetics		
11b Gravity	yes	Shipboard gravity from Ewing profiles
12 Sediment cores	yes	Details of piston cores in the gulf adjacent to proposed sites
13 Rock sampling		
14a Water current data		
14b Ice Conditions		
15 OBS microseismicity		
16 Navigation	yes	Navigation for primary and crossing seismic profile
17 Other		

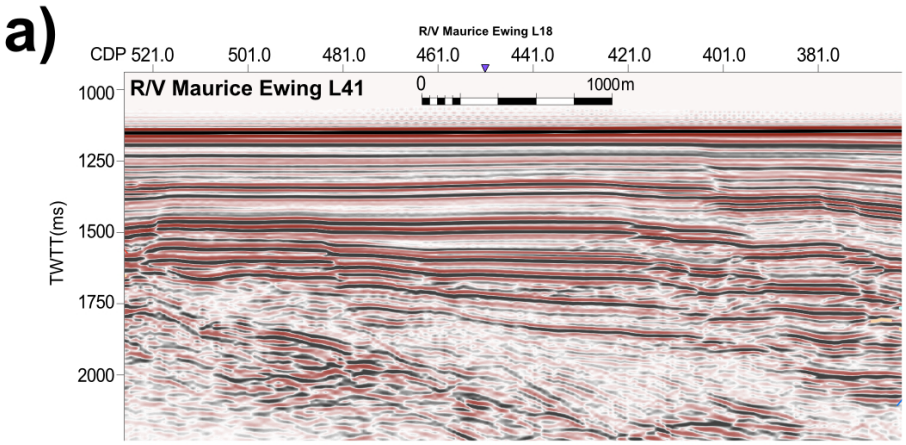
Proposal #: 879 - Add 2	Site #: COR-01A	Date Form Submitted:

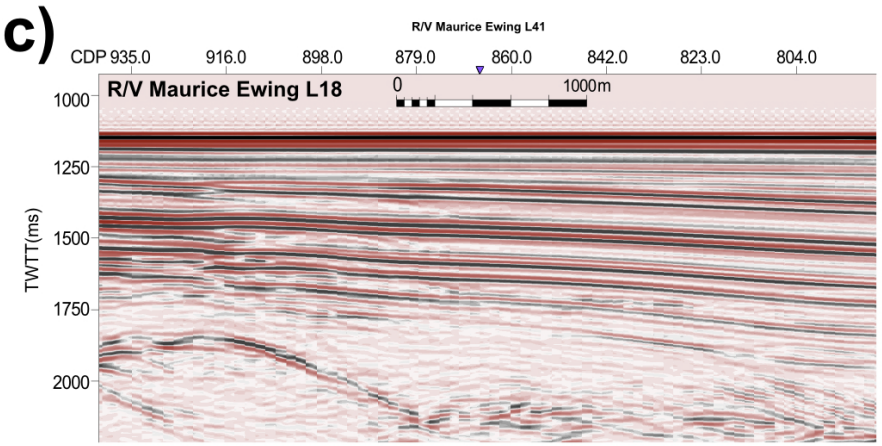
Pollution & Safety Hazard	Comment
1. Summary of operations at site	APC to refusal, then RCB, single hole coring. Drilling times not clearly known as an MSP, but average rate of penetration of 40m/day and expected drilling times used here are supplied by BGS/ESO.
2. All hydrocarbon occurrences based on previous DSDP/ODP/IODP drilling	None
3. All commercial drilling in this area that produced or yielded significant hydrocarbon shows	None
4. Indications of gas hydrates at this location	No
5. Are there reasons to expect hydrocarbon accumulations at this site?	No, insufficient burial, no known source formation within expected lithologies (based on onshore exposures and shallow cored sections)
6. What "special" precautions will be taken during drilling?	No special procedures needed
7. What abandonment procedures need to be followed?	No special procedures needed
8. Natural or manmade hazards which may affect ship's operations	None. Shipping traffic to and from the Corinth canal pass through this area, but local collaborators do not foresee any issues
9. Summary: What do you consider the major risks in drilling at this site?	No major risks

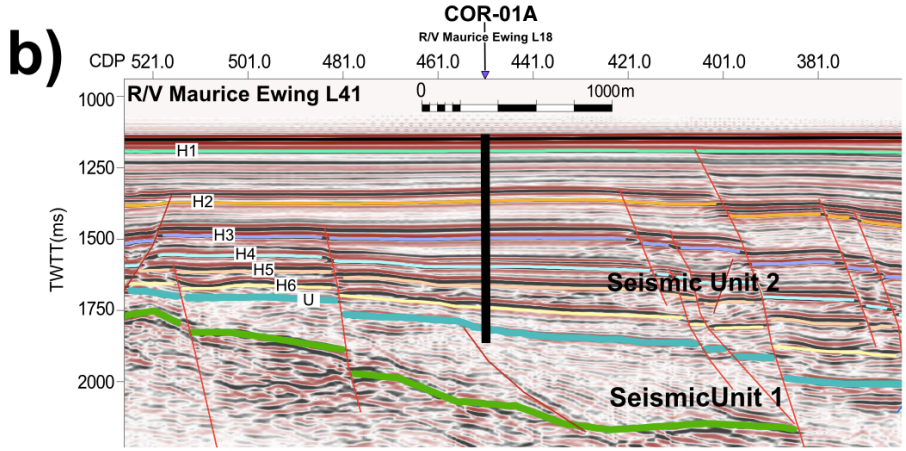
Proposal #: 879 - Add 2	Site #: COR-01A	Date Form Submitted:

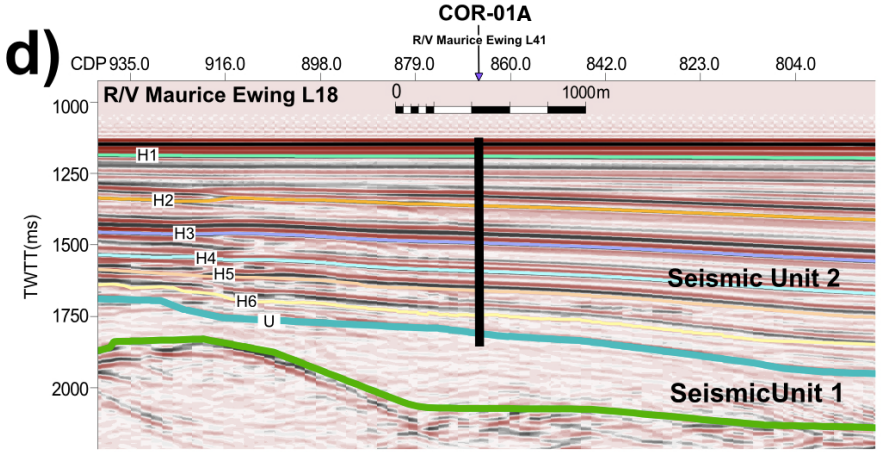
Subbottom depth (m)	Key reflectors, unconformities, faults, etc	Age (My)	Assumed velocity (km/s)	Lithology	Paleo-environment	Avg. accum. rate (m/My)	Comments
0 - 695	Seismic Unit 2 syn-rift interbedded hemipelagite and gravity flow deposits	0 - ~0.6	2.1	interbedded hemipelagite-gravity flow muds, silts, thin sands	marine-lacustrine silled basin	~1000	
695 - 750	Regional unconformity then uppermost Seismic Unit 1 syn-rift lake basin deposits	~0.6 - 0.8	2.6	muds, silts, sands, ?gravel of likely lacustrine origin	Probable lacustrine basin	unknown	

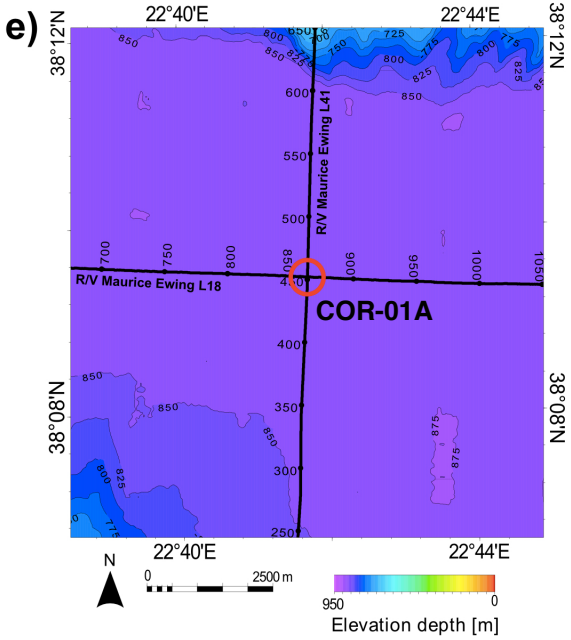
COR-01A











COR-01A
Ewing L41, CDP 452 (a and b)
Ewing L18, CDP 864 (c and d)

Files uploaded to SSDB:
Location map: COR-01_location.pdf
Seismic figures: COR-01_L41_interp.pdf; COR-01_L41.pdf; COR-01_L18_interp.pdf; COR-01_L18.pdf
SEGY data: COR01_L41.sgy; COR-01_L18.sgy
Navigation: COR-01_L41_nav.txt; COR-01_L18_nav.txt
Bathymetry: COR-01_bathy.grd
Velocity: Corinth_velocity_information.pdf
Gravity: L41_grav.txt; L18_grav.txt
Piston cores: Corinth_piston_cores.pdf

IODP Site Forms

Form 1 – General Site Information

879 - Add 2

Section A: Proposal Information

Proposal Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Date Form Submitted	
Site-Specific Objectives with Priority (Must include general objectives in proposal)	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to:Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-03); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
List Previous Drilling in Area	

Section B: General Site Information

Site Name:	COR-02A	Area or Location:	Corinth Gulf, Greece
If site is a reoccupation of an old DSDP/ODP Site, Please include former Site#			
Latitude:	Deg: 38.1440905	Jurisdiction:	Greece
Longitude:	Deg: 22.75840508	Distance to Land: (km)	10
Coordinate System:	WGS 84		
Priority of Site:	Primary: ✓ Alternate:	Water Depth (m):	862

Section C: Operational Information

	Sediments	Basement
Proposed Penetration (m):	750	0
Total Sediment Thickness (m)	800	
Total Penetration (m):	750	

General Lithologies: Hemipelagic, gravity flow and fluvial muds, silts, sands, possible gravels at depth

Triassic-Paleogene carbonate expected

Coring Plan: (Specify or check)

APC ☑ XCB ☐ RCB ☑ Re-entry ☐ PCS ☐

Wireline Logging Plan:

Standard Measurements		Special Tools		
WL	☑	Magnetic Susceptibility	☑	Other tools:
Porosity	☑	Borehole Temperature	☑	
Density	☐	Formation Image (Acoustic)	☑	
Gamma Ray	☑	VSP (walkaway)	☐	
Resistivity	☑	LWD	☐	
Sonic (Δt)	☑			
Formation Image (Res)	☑			
VSP (zero offset)	☐			
Formation Temperature & Pressure	☐			

Other Measurements:

Estimated Days: Drilling/Coring: 20.4 | Logging: 3 | Total On-site: 23.4

Observatory Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Potential Hazards/ Weather:

Shallow Gas ☐	Complicated Seabed Condition ☐	Hydrothermal Activity ☐	Preferred weather window
Hydrocarbon ☐	Soft Seabed ☐	Landslide and Turbidity Current ☐	Relatively sheltered basin, therefore flexible
Shallow Water Flow ☐	Currents ☐	Gas Hydrate ☐	
Abnormal Pressure ☐	Fracture Zone ☐	Diapir and Mud Volcano ☐	
Man-made Objects (e.g., sea-floor cables, dump sites) ☐	Fault ☐	High Temperature ☐	
H_2S ☐	High Dip Angle ☐	Ice Conditions ☐	
CO_2 ☐			

Sensitive marine habitat (e.g., reefs, vents)

Other:

IODP Site Forms

Form 2 - Site Survey Detail

Proposal #: 879 - Add 2	Site #: COR-02A	Date Form Submitted:

Data Type	In SSDB	Details of available data and data that are still to be collected
1a High resolution seismic reflection (primary)		
1b High resolution seismic seismic reflection (crossing)		
2a Deep penetration seismic reflection (primary)	yes	Line: Ewing MCS Line 42 Position: CDP 659
2b Deep penetration seismic reflection (crossing)	yes	Line: Ewing MCS Line 09 Position: CDP 46
3 Seismic Velocity	yes	Details of seismic velocity data available and velocity-depth profile applied here
4 Seismic Grid		
5a Refraction (surface)		
5b Refraction (bottom)		
6 3.5 kHz	yes	Shipboard 3.5kHz from Ewing profiles
7 Swath bathymetry	yes	HCMR Seabeam 2120 data for site
8a Side looking sonar (surface)		
8b Side looking sonar (bottom)		
9 Photography or video		
10 Heat Flow		
11a Magnetics		
11b Gravity	yes	Shipboard gravity from Ewing profiles
12 Sediment cores	yes	Details of piston cores in the gulf adjacent to proposed sites
13 Rock sampling		
14a Water current data		
14b Ice Conditions		
15 OBS microseismicity		
16 Navigation	yes	Navigation for primary and crossing seismic profile
17 Other		

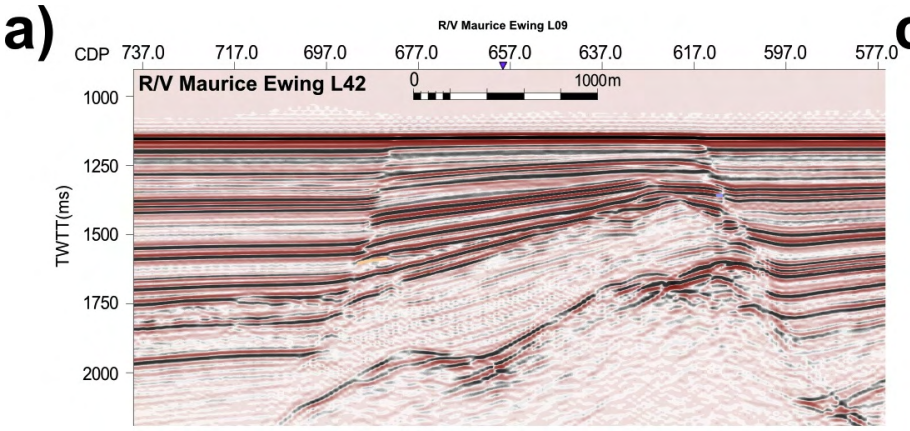
Proposal #: 879 - Add 2	Site #: COR-02A	Date Form Submitted:

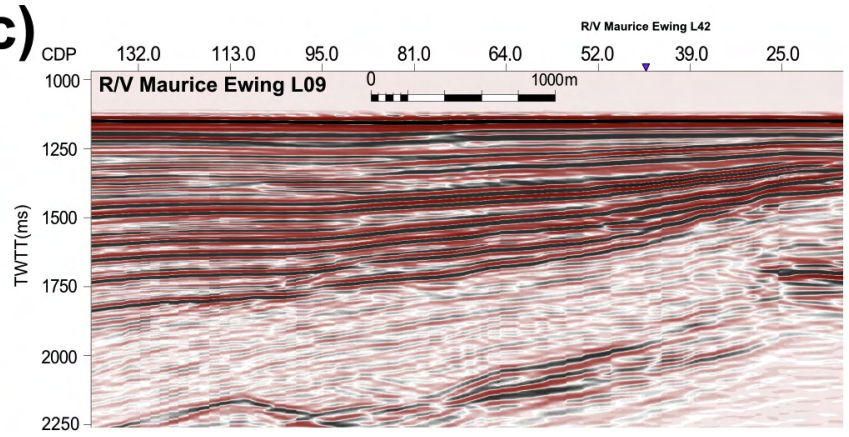
Pollution & Safety Hazard	Comment
1. Summary of operations at site	APC to refusal, then RCB, single hole coring. Drilling times not clearly known as an MSP, but average rate of penetration of 40m/day and expected drilling times used here are supplied by BGS/ESO.
2. All hydrocarbon occurrences based on previous DSDP/ODP/IODP drilling	None
3. All commercial drilling in this area that produced or yielded significant hydrocarbon shows	None
4. Indications of gas hydrates at this location	No
5. Are there reasons to expect hydrocarbon accumulations at this site?	No, insufficient burial, no known source formation within expected lithologies (based on onshore exposures and shallow cored sections)
6. What "special" precautions will be taken during drilling?	No special procedures needed
7. What abandonment procedures need to be followed?	No special procedures needed
8. Natural or manmade hazards which may affect ship's operations	None. Shipping traffic to and from the Corinth canal pass through this area, but local collaborators do not foresee any issues
9. Summary: What do you consider the major risks in drilling at this site?	No major risks

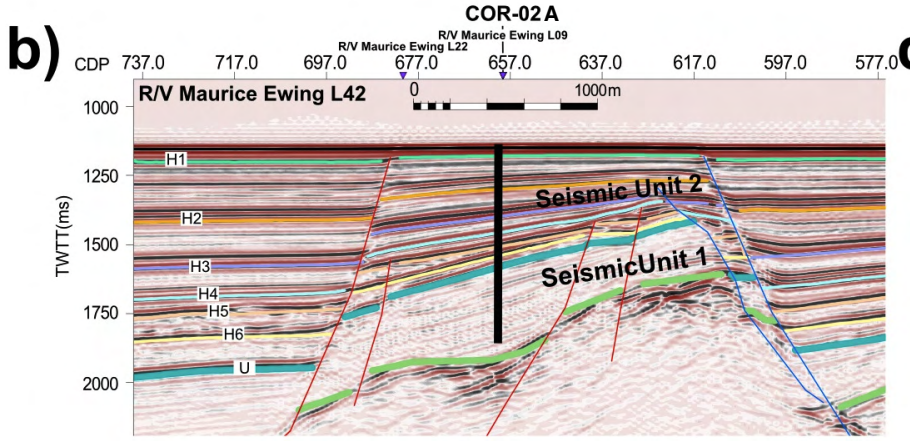
Proposal #: 879 - Add 2	Site #: COR-02A	Date Form Submitted:

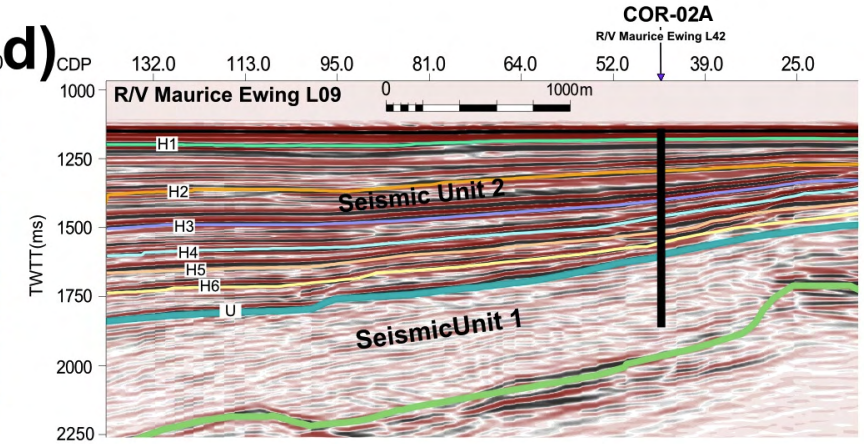
Subbottom depth (m)	Key reflectors, unconformities, faults, etc	Age (My)	Assumed velocity (km/s)	Lithology	Paleo-environment	Avg. accum. rate (m/My)	Comments
0 - 440	Seismic Unit 2 syn-rift interbedded hemipelagite and gravity flow deposits	0 - ~0.6	1.9	interbedded hemipelagite-gravity flow muds, silts, thin sands	marine-lacustrine silled basin	~1000	
440 - 750	Regional unconformity then uppermost Seismic Unit 1 syn-rift lake basin deposits	~0.6 - 0.8	2.4	muds, silts, sands, ?gravel of likely lacustrine origin	Probable lacustrine basin	unknown	

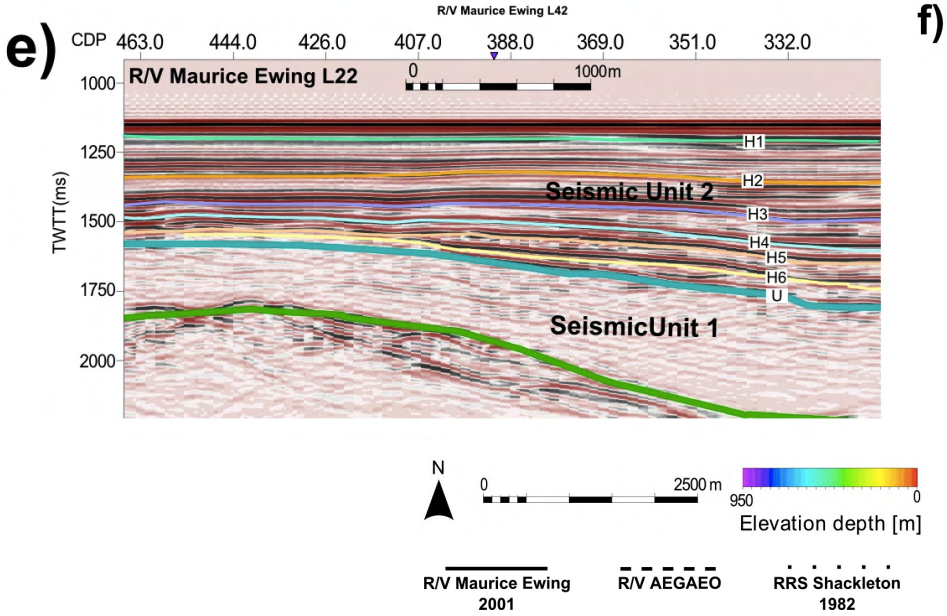
COR-02A

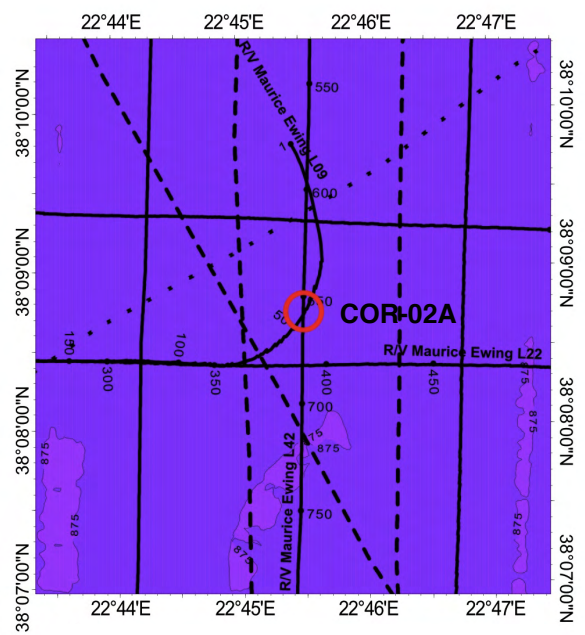












COR-02A
Ewing L42, CDP 659 (a and b)
Ewing L09, CDP 46 (c and d)

Ewing L22 (e), south of the site and perpendicular to L42 is shown to illustrate 3D structure (due to non-90° crossing angle of L09). Other profiles within the surrounding grid can be made available.
See also Figure 8b for fault map illustrating why COR-02 is the preferred location and structural context around the horst.

Files uploaded to SSDB:

Location map: COR-02_location.pdf
Seismic figures: COR-02_L42_interp.pdf; COR-02_L42.pdf; COR-02_L22_interp.pdf; COR-02_L22.pdf;
SEGY data: COR02_L42.sgy; COR-02_L22.sgy
Navigation: COR-02_L42_nav.txt; COR-02_L22_nav.txt
Bathymetry: COR-02_bathy.grd
Velocity: Corinth_velocity_information.pdf
Gravity: L42_grav.txt; L22_grav.txt
Piston cores: Corinth_piston_cores.pdf

IODP Site Forms

Form 1 – General Site Information

879 - Add 2

Section A: Proposal Information

Proposal Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Date Form Submitted	
Site-Specific Objectives with Priority (Must include general objectives in proposal)	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-02); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
List Previous Drilling in Area	

Section B: General Site Information

Site Name:	COR-03B	Area or Location:	Alkyonides Gulf, Greece
If site is a reoccupation of an old DSDP/ODP Site, Please include former Site#			
Latitude:	Deg: 38.11740647	Jurisdiction:	Greece
Longitude:	Deg: 23.10622823	Distance to Land: (km)	6
Coordinate System:	WGS 84		
Priority of Site:	Primary: ☐ Alternate: ☑	Water Depth (m):	347

Section C: Operational Information

	Sediments	Basement
Proposed Penetration (m):	717	10
Total Sediment Thickness (m)	717	
Total Penetration (m):	727	

General Lithologies: Hemipelagic, gravity flow and fluvial muds, silts, sands, possible gravels at depth

Triassic-Paleogene carbonate expected

Coring Plan: (Specify or check)

APC ☑ XCB ☐ RCB ☑ Re-entry ☐ PCS ☐

Wireline Logging Plan:

Standard Measurements		Special Tools		
WL	☑	Magnetic Susceptibility	☑	Other tools:
Porosity	☑	Borehole Temperature	☑	
Density	☐	Formation Image (Acoustic)	☑	
Gamma Ray	☑	VSP (walkaway)	☐	
Resistivity	☑	LWD	☐	
Sonic (Δt)	☑			
Formation Image (Res)	☑			
VSP (zero offset)	☐			
Formation Temperature & Pressure	☐			

Other Measurements:

Estimated Days: Drilling/Coring: 20.2 | Logging: 3 | Total On-site: 23.2

Observatory Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Potential Hazards/ Weather:

Shallow Gas ☐	Complicated Seabed Condition ☐	Hydrothermal Activity ☐	Preferred weather window
Hydrocarbon ☐	Soft Seabed ☐	Landslide and Turbidity Current ☐	Relatively sheltered basin, therefore flexible
Shallow Water Flow ☐	Currents ☐	Gas Hydrate ☐	
Abnormal Pressure ☐	Fracture Zone ☐	Diapir and Mud Volcano ☐	
Man-made Objects (e.g., sea-floor cables, dump sites) ☐	Fault ☐	High Temperature ☐	
H_2S ☐	High Dip Angle ☐	Ice Conditions ☐	
CO_2 ☐			

Sensitive marine habitat (e.g., reefs, vents)

Other:

IODP Site Forms

Form 2 - Site Survey Detail

Proposal #: 879 - Add 2	Site #: COR-03B	Date Form Submitted:

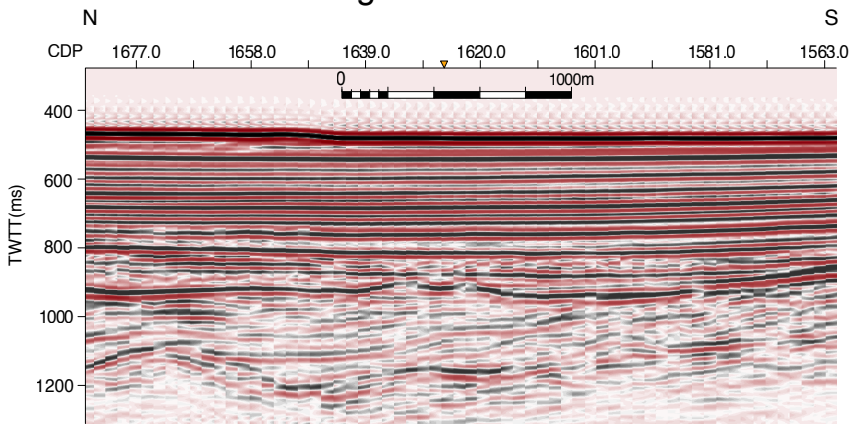
Data Type	In SSDB	Details of available data and data that are still to be collected
1a High resolution seismic reflection (primary)		
1b High resolution seismic seismic reflection (crossing)		
2a Deep penetration seismic reflection (primary)	yes	Line: Ewing MCS Line 22 Position: CDP 1615
2b Deep penetration seismic reflection (crossing)	yes	
3 Seismic Velocity	yes	Details of seismic velocity data available and velocity-depth profile applied here
4 Seismic Grid		
5a Refraction (surface)		
5b Refraction (bottom)		
6 3.5 kHz	yes	Shipboard 3.5kHz from Ewing profiles
7 Swath bathymetry	yes	HCMR Seabeam 2120 data for site
8a Side looking sonar (surface)		
8b Side looking sonar (bottom)		
9 Photography or video		
10 Heat Flow		
11a Magnetics		
11b Gravity	yes	Shipboard gravity from Ewing profiles
12 Sediment cores	yes	Details of piston cores in the gulf adjacent to proposed sites
13 Rock sampling		
14a Water current data		
14b Ice Conditions		
15 OBS microseismicity		
16 Navigation	yes	Navigation for primary and crossing seismic profile
17 Other		

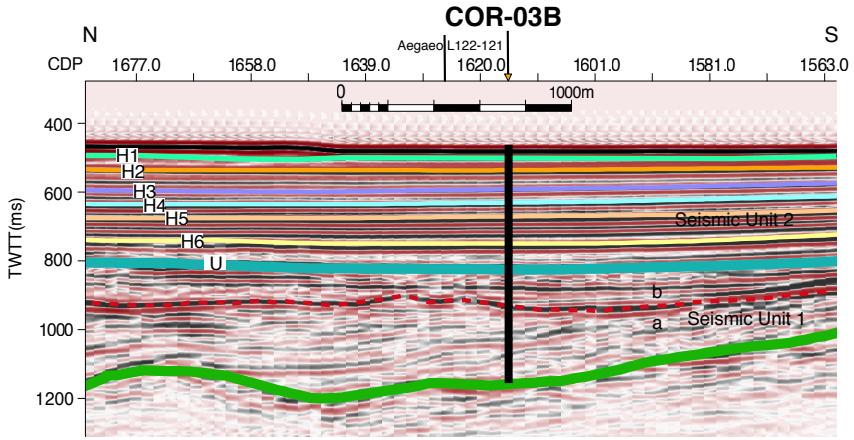
Proposal #: 879 - Add 2	Site #: COR-03B	Date Form Submitted:

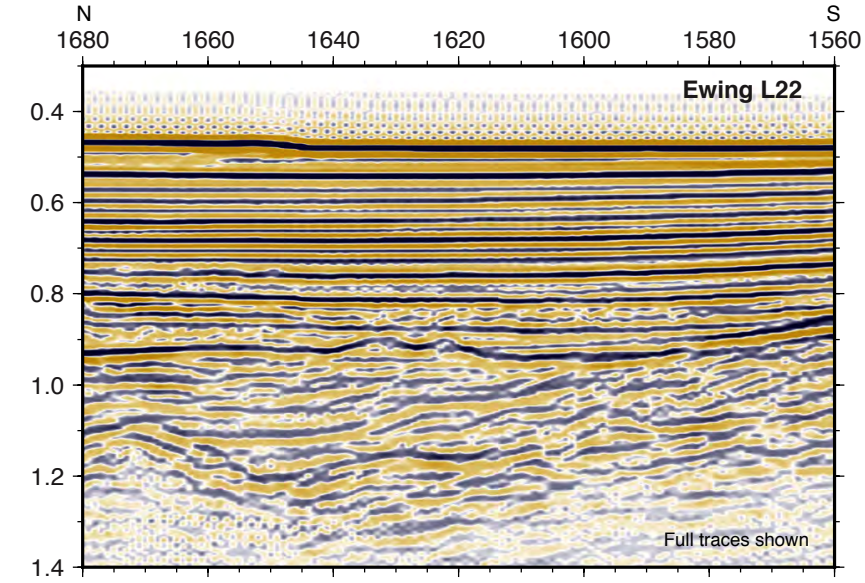
Pollution & Safety Hazard	Comment
1. Summary of operations at site	APC to refusal, then RCB, single hole coring. Drilling times not clearly known as an MSP, but average rate of penetration of 40m/day and expected drilling times used here are supplied by BGS/ESO.
2. All hydrocarbon occurrences based on previous DSDP/ODP/IODP drilling	None
3. All commercial drilling in this area that produced or yielded significant hydrocarbon shows	None
4. Indications of gas hydrates at this location	No
5. Are there reasons to expect hydrocarbon accumulations at this site?	No, insufficient burial, no known source formation within expected lithologies (based on onshore exposures and shallow cored sections)
6. What "special" precautions will be taken during drilling?	No special procedures needed
7. What abandonment procedures need to be followed?	No special procedures needed
8. Natural or manmade hazards which may affect ship's operations	None. Shipping traffic to and from the Corinth canal pass through this area, but local collaborators do not foresee any issues
9. Summary: What do you consider the major risks in drilling at this site?	No major risks

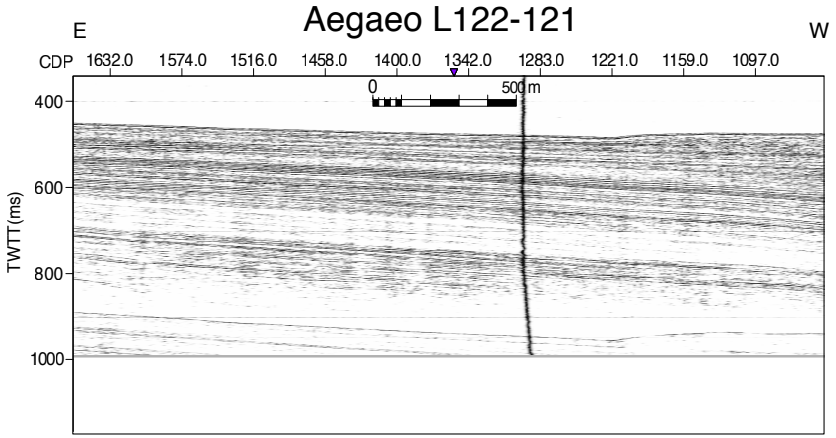
Proposal #: 879 - Add 2	Site #: COR-03B	Date Form Submitted:

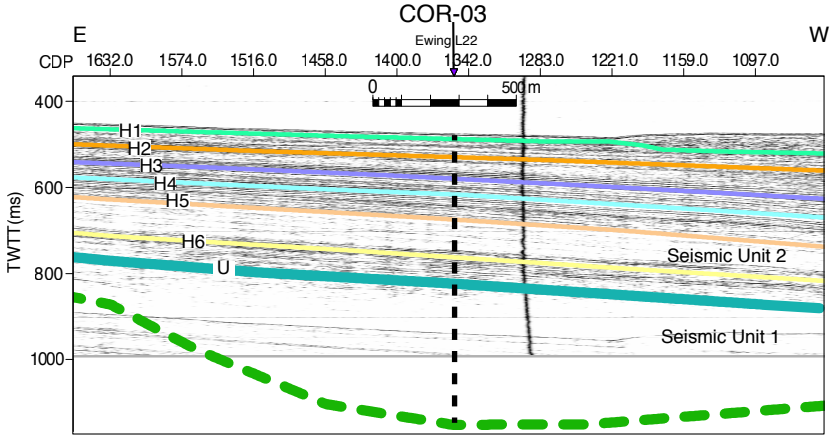
Subbottom depth (m)	Key reflectors, unconformities, faults, etc	Age (My)	Assumed velocity (km/s)	Lithology	Paleo-environment	Avg. accum. rate (m/My)	Comments
0 - 324	Seismic Unit 2 syn-rift interbedded hemipelagite and gravity flow deposits	0 - ~0.6	1.8	interbedded hemipelagite-gravity flow muds, silts, thin sands	marine-lacustrine silled basin	~1000	
324 - 717	Regional unconformity then uppermost Seismic Unit 1 syn-rift lake basin deposits	~0.6 - 0.8	2.3	muds, silts, sands, ?gravel of likely lacustrine origin	Probable lacustrine basin	unknown	
717 - 727		Triassic-Paleogene	3	Basement - Triassic-Paleogene carbonates expected (possible ophiolite)	marine basin		

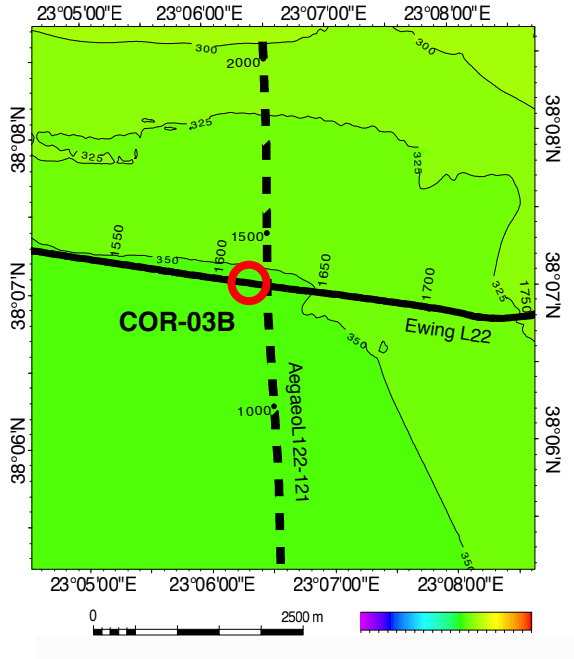












COR-03B

COR-03B

Primary line (E-W):
Ewing L22, CDP 1615

Secondary line (N-S):
Aegaeo L122-121 crosses L22 at CDP 1354 - original site COR-03 at crossing point is shown.

Relevant files uploaded to SSDB

SEGY data: COR03_L22.sgy; COR-03_L122-121.sgy
Navigation: COR-03_L22_nav.txt; COR-03_L122-121_nav.txt
Bathymetry: COR-03_bathy.grd
Gravity: L22_grav.txt
Velocity: Corinth_velocity_information.pdf
Piston cores: Corinth_piston_cores.pdf

IODP Site Forms

Form 1 – General Site Information

879 - Add 2

Section A: Proposal Information

Proposal Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Date Form Submitted	
Site-Specific Objectives with Priority (Must include general objectives in proposal)	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to:Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-02); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
List Previous Drilling in Area	

Section B: General Site Information

Site Name:	COR-04B	Area or Location:	Alkyonides Gulf, Greece
If site is a reoccupation of an old DSDP/ODP Site, Please include former Site#			
Latitude:	Deg: 38.12008304	Jurisdiction:	Greece
Longitude:	Deg: 23.08627505	Distance to Land: (km)	7
Coordinate System:	WGS 84		
Priority of Site:	Primary: ✓ Alternate:	Water Depth (m):	365

Section C: Operational Information

	Sediments	Basement
Proposed Penetration (m):	469	10
Total Sediment Thickness (m)	469	
Total Penetration (m):	479	

General Lithologies: Hemipelagic, gravity flow and fluvial muds, silts, sands, possible gravels at depth

Triassic-Paleogene carbonate expected

Coring Plan: (Specify or check)

APC ☑ XCB ☐ RCB ☑ Re-entry ☐ PCS ☐

Wireline Logging Plan:

Standard Measurements		Special Tools		
WL	☑	Magnetic Susceptibility	☑	Other tools:
Porosity	☑	Borehole Temperature	☑	
Density	☐	Formation Image (Acoustic)	☑	
Gamma Ray	☑	VSP (walkaway)	☐	
Resistivity	☑	LWD	☐	
Sonic (Δt)	☑			
Formation Image (Res)	☑			
VSP (zero offset)	☐			
Formation Temperature & Pressure	☐			

Other Measurements:

Estimated Days: Drilling/Coring: 13.7 | Logging: 2 | Total On-site: 15.7

Observatory Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Potential Hazards/ Weather:

Shallow Gas ☐	Complicated Seabed Condition ☐	Hydrothermal Activity ☐	Preferred weather window
Hydrocarbon ☐	Soft Seabed ☐	Landslide and Turbidity Current ☐	Relatively sheltered basin, therefore flexible
Shallow Water Flow ☐	Currents ☐	Gas Hydrate ☐	
Abnormal Pressure ☐	Fracture Zone ☐	Diapir and Mud Volcano ☐	
Man-made Objects (e.g., sea-floor cables, dump sites) ☐	Fault ☐	High Temperature ☐	
H_2S ☐	High Dip Angle ☐	Ice Conditions ☐	
CO_2 ☐			

Sensitive marine habitat (e.g., reefs, vents)

Other:

IODP Site Forms

Form 2 - Site Survey Detail

Proposal #: 879 - Add 2	Site #: COR-04B	Date Form Submitted:

Data Type	In SSDB	Details of available data and data that are still to be collected
1a High resolution seismic reflection (primary)		
1b High resolution seismic seismic reflection (crossing)		
2a Deep penetration seismic reflection (primary)	yes	Line: Ewing MCS Line 22 Position: CDP 1544
2b Deep penetration seismic reflection (crossing)	yes	
3 Seismic Velocity	yes	Details of seismic velocity data available and velocity-depth profile applied here
4 Seismic Grid		
5a Refraction (surface)		
5b Refraction (bottom)		
6 3.5 kHz	yes	Shipboard 3.5kHz from Ewing profiles
7 Swath bathymetry	yes	HCMR Seabeam 2120 data for site
8a Side looking sonar (surface)		
8b Side looking sonar (bottom)		
9 Photography or video		
10 Heat Flow		
11a Magnetics		
11b Gravity	yes	Shipboard gravity from Ewing profiles
12 Sediment cores	yes	Details of piston cores in the gulf adjacent to proposed sites
13 Rock sampling		
14a Water current data		
14b Ice Conditions		
15 OBS microseismicity		
16 Navigation	yes	Navigation for primary and crossing seismic profile
17 Other		

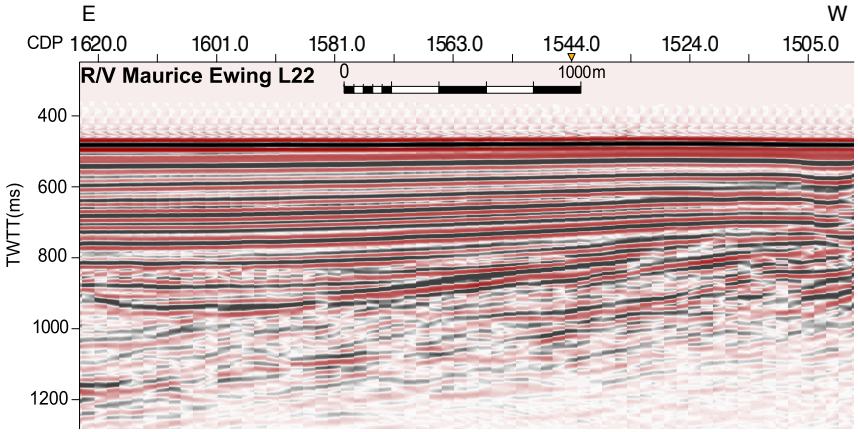
Proposal #: 879 - Add 2	Site #: COR-04B	Date Form Submitted:

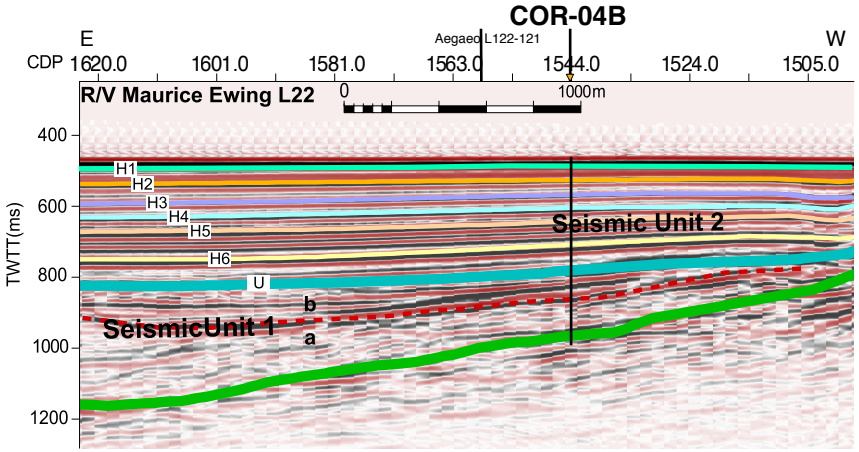
Pollution & Safety Hazard	Comment
1. Summary of operations at site	APC to refusal, then RCB, single hole coring. Drilling times not clearly known as an MSP, but average rate of penetration of 40m/day and expected drilling times used here are supplied by BGS/ESO.
2. All hydrocarbon occurrences based on previous DSDP/ODP/IODP drilling	None
3. All commercial drilling in this area that produced or yielded significant hydrocarbon shows	None
4. Indications of gas hydrates at this location	No
5. Are there reasons to expect hydrocarbon accumulations at this site?	No, insufficient burial, no known source formation within expected lithologies (based on onshore exposures and shallow cored sections)
6. What "special" precautions will be taken during drilling?	No special procedures needed
7. What abandonment procedures need to be followed?	No special procedures needed
8. Natural or manmade hazards which may affect ship's operations	None. Shipping traffic to and from the Corinth canal pass through this area, but local collaborators do not foresee any issues
9. Summary: What do you consider the major risks in drilling at this site?	No major risks

Proposal #: 879 - Add 2	Site #: COR-04B	Date Form Submitted:

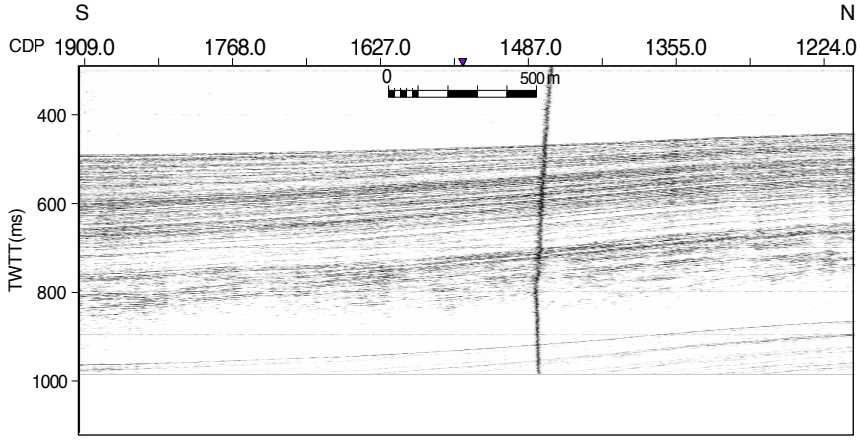
Subbottom depth (m)	Key reflectors, unconformities, faults, etc	Age (My)	Assumed velocity (km/s)	Lithology	Paleo-environment	Avg. accum. rate (m/My)	Comments
0 - 272	Seismic Unit 2 syn-rift interbedded hemipelagite and gravity flow deposits	0 - ~0.6	1.8	interbedded hemipelagite-gravity flow muds, silts, thin sands	marine-lacustrine silled basin	~1000	
272 - 469	Regional unconformity then uppermost Seismic Unit 1 syn-rift lake basin deposits	~0.6 - 0.8	2.1	muds, silts, sands, ?gravel of likely lacustrine origin	Probable lacustrine basin	unknown	
469 - 479		Triassic-Paleogene	3	Basement - Triassic-Paleogene carbonates expected (possible ophiolite)			

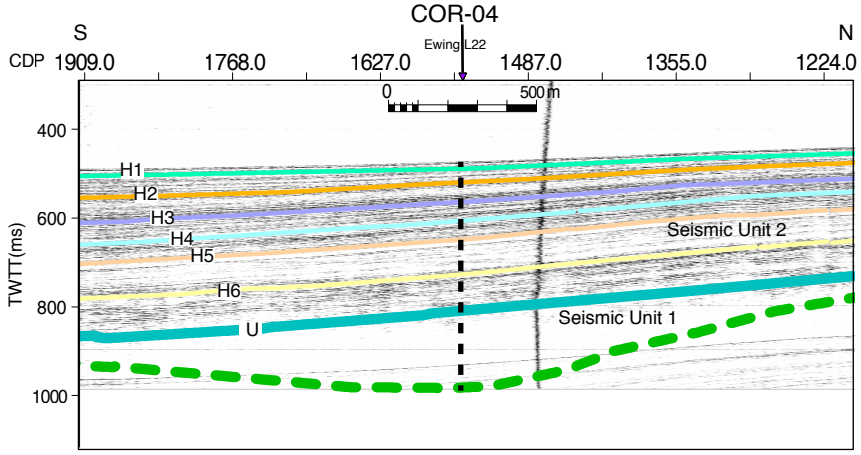
Ewing Line 22

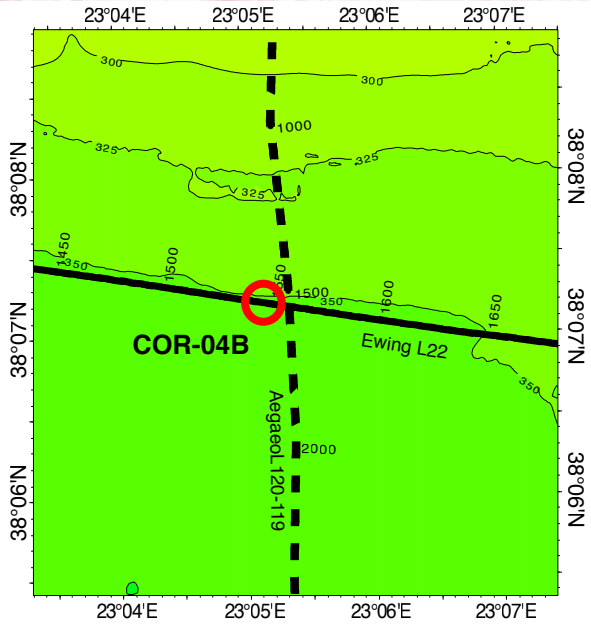


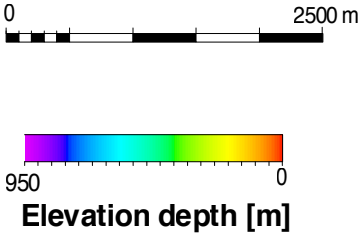


Aegaeo L120-119









COR-04B

COR-04B

Primary line (E-W):
Ewing L22, CDP 1544

Secondary line (N-S):
Aegaeo L120-119 crosses L22 at CDP 1558 - original site COR-04 at crossing point is shown.

Relevant files uploaded to SSDB:

SEGY data: COR04_L22.sgy; COR-04_L120-119.sgy
Navigation: COR-04_L22_nav.txt;
COR-04_L120-119_nav.txt
Bathymetry: COR-04_bathy.grd
Velocity: Corinth_velocity_information.pdf
Gravity: L22_grav.txt; L120-119_grav.txt
Piston cores: Corinth_piston_cores.pdf

IODP Site Forms

Form 1 – General Site Information

879 - Add 2

Section A: Proposal Information

Proposal Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Date Form Submitted	
Site-Specific Objectives with Priority (Must include general objectives in proposal)	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine deposits), regional unconformity, and seismic unit 1 (SU1: expected Plio-Pleistocene lacustrine-fluvial syn-rift deposits) to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence (SU2); Determine nature and age of regional unconformity and change in age and environment across the unconformity; Establish age and paleoenvironment of SU1 for integration with onshore syn-rift stratigraphy and rift evolution timing along the rift axis (by comparison with COR-03); Utilise chronostratigraphy of complete section to analyse fault and rift development and sediment flux history by core-log-seismic integration.
List Previous Drilling in Area	

Section B: General Site Information

Site Name:	COR-05B	Area or Location:	Corinth Gulf, Greece
If site is a reoccupation of an old DSDP/ODP Site, Please include former Site#		Jurisdiction:	Greece
Latitude:	Deg: 38.28004101	Distance to Land: (km)	6
Longitude:	Deg: 22.41106702		
Coordinate System:	WGS 84		
Priority of Site:	Primary: ☐ Alternate: ☑	Water Depth (m):	529

Section C: Operational Information

	Sediments	Basement
Proposed Penetration (m):	750	0
Total Sediment Thickness (m)	905	
Total Penetration (m):	750	

General Lithologies: Hemipelagic, gravity flow and fluvial muds, silts, sands, possible gravels at depth

Triassic-Paleogene carbonate expected

Coring Plan: (Specify or check)

APC ☑ XCB ☐ RCB ☑ Re-entry ☐ PCS ☐

Wireline Logging Plan:

Standard Measurements		Special Tools		
WL	☑	Magnetic Susceptibility	☑	Other tools:
Porosity	☑	Borehole Temperature	☑	
Density	☐	Formation Image (Acoustic)	☑	
Gamma Ray	☑	VSP (walkaway)	☐	
Resistivity	☑	LWD	☐	
Sonic (Δt)	☑			
Formation Image (Res)	☑			
VSP (zero offset)	☐			
Formation Temperature & Pressure	☐			

Other Measurements:

Estimated Days: Drilling/Coring: 20.4 | Logging: 3 | Total On-site: 23.4

Observatory Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Potential Hazards/ Weather:

Shallow Gas ☐	Complicated Seabed Condition ☐	Hydrothermal Activity ☐	Preferred weather window
Hydrocarbon ☐	Soft Seabed ☐	Landslide and Turbidity Current ☐	Relatively sheltered basin, therefore flexible
Shallow Water Flow ☐	Currents ☐	Gas Hydrate ☐	
Abnormal Pressure ☐	Fracture Zone ☐	Diapir and Mud Volcano ☐	
Man-made Objects (e.g., sea-floor cables, dump sites) ☐	Fault ☐	High Temperature ☐	
H_2S ☐	High Dip Angle ☐	Ice Conditions ☐	
CO_2 ☐			

Sensitive marine habitat (e.g., reefs, vents)

Other:

IODP Site Forms

Form 2 - Site Survey Detail

Proposal #: 879 - Add 2	Site #: COR-05B	Date Form Submitted:

Data Type	In SSDB	Details of available data and data that are still to be collected
1a High resolution seismic reflection (primary)		
1b High resolution seismic seismic reflection (crossing)		
2a Deep penetration seismic reflection (primary)	yes	Line: Ewing MCS Line 16 Position: CDP 588
2b Deep penetration seismic reflection (crossing)	yes	
3 Seismic Velocity	yes	Details of seismic velocity data available and velocity-depth profile applied here
4 Seismic Grid		
5a Refraction (surface)		
5b Refraction (bottom)		
6 3.5 kHz	yes	Shipboard 3.5kHz from Ewing profiles
7 Swath bathymetry	yes	HCMR Seabeam 2120 data for site
8a Side looking sonar (surface)		
8b Side looking sonar (bottom)		
9 Photography or video		
10 Heat Flow		
11a Magnetics		
11b Gravity	yes	Shipboard gravity from Ewing profiles
12 Sediment cores	yes	Details of piston cores in the gulf adjacent to proposed sites
13 Rock sampling		
14a Water current data		
14b Ice Conditions		
15 OBS microseismicity		
16 Navigation	yes	Navigation for primary and crossing seismic profile
17 Other		

IODP Site Forms

Form 4 - Environmental Protection

Proposal #: 879 - Add 2	Site #: COR-05B	Date Form Submitted:

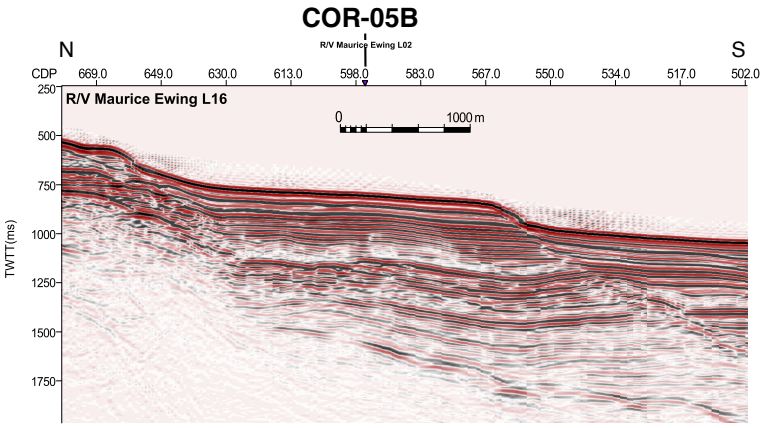
Pollution & Safety Hazard	Comment
1. Summary of operations at site	APC to refusal, then RCB, single hole coring. Drilling times not clearly known as an MSP, but average rate of penetration of 40m/day and expected drilling times used here are supplied by BGS/ESO.
2. All hydrocarbon occurrences based on previous DSDP/ODP/IODP drilling	None
3. All commercial drilling in this area that produced or yielded significant hydrocarbon shows	None
4. Indications of gas hydrates at this location	No
5. Are there reasons to expect hydrocarbon accumulations at this site?	No, insufficient burial, no known source formation within expected lithologies (based on onshore exposures and shallow cored sections)
6. What "special" precautions will be taken during drilling?	No special procedures needed
7. What abandonment procedures need to be followed?	No special procedures needed
8. Natural or manmade hazards which may affect ship's operations	None. Shipping traffic to and from the Corinth canal pass through this area, but local collaborators do not foresee any issues
9. Summary: What do you consider the major risks in drilling at this site?	No major risks

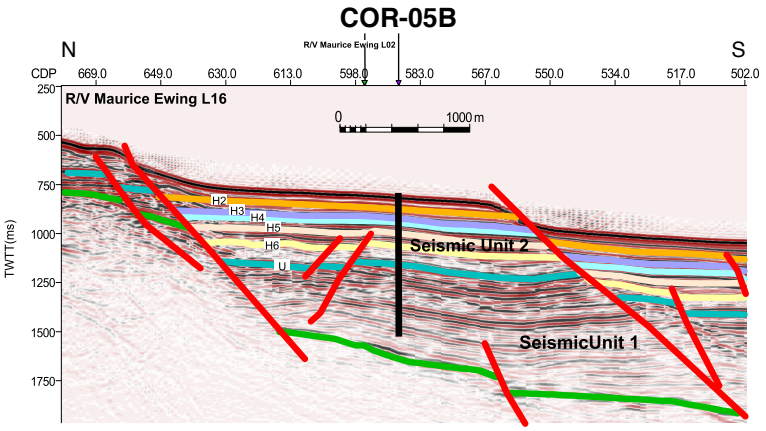
Proposal #: 879 - Add 2	Site #: COR-05B	Date Form Submitted:

Subbottom depth (m)	Key reflectors, unconformities, faults, etc	Age (My)	Assumed velocity (km/s)	Lithology	Paleo-environment	Avg. accum. rate (m/My)	Comments
0 - 320	Seismic Unit 2 syn-rift interbedded hemipelagite and gravity flow deposits	0 - ~0.6	1.8	interbedded hemipelagite-gravity flow muds, silts, thin sands	marine-lacustrine silled basin	~1000	
320 - 750	Regional unconformity then uppermost Seismic Unit 1 syn-rift lake basin deposits	~0.6 - 0.8	2.4	muds, silts, sands, ?gravel of likely lacustrine origin	Probable lacustrine basin	unknown	

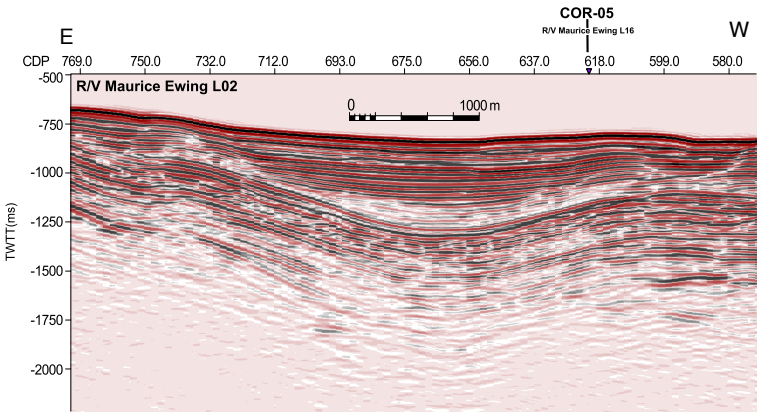
COR-05B

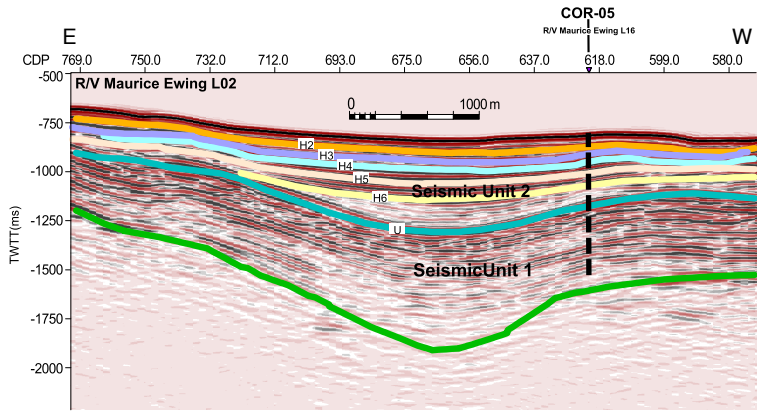
Ewing Line 16

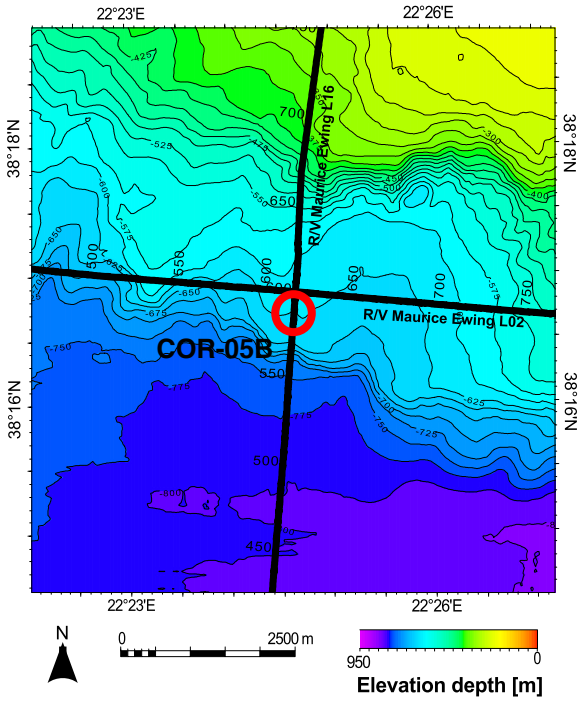




Ewing Line 02







COR-05B

Primary (N-S) Ewing L16, CDP 588

Secondary line (E-W):
Ewing L02 crosses
L16 at CDP 596 - original
site COR-05 at crossing
point is shown.

Relevant files uploaded to SSDB:

SEGY data: L16.sgy; L02.sgy
Navigation: L16_nav.txt; L02_nav.txt
Bathymetry: COR-05A_bathy.grd
Gravity: L16_grav.txt; L02_grav.txt
Velocity: Corinth_velocity_information.pdf
Piston cores: Corinth_piston_cores.pdf

IODP Site Forms

Form 1 – General Site Information

879 - Add 2

Section A: Proposal Information

Proposal Title	Addendum 2: Drilling the Corinth Rift: Resolving the detail of active rift development
Date Form Submitted	
Site-Specific Objectives with Priority (Must include general objectives in proposal)	Core and wireline log seismic unit 2 (SU2: expected Late Pleistocene interbedded marine-lacustrine hemipelagic-gravity flow deposits), and underlying unconformity to: Determine age, lithology, and paleoenvironment of most recent syn-rift stratigraphic sequence; Determine nature and age of regional unconformity and change in age and environment across the unconformity; Utilise chronostratigraphy to analyse fault and rift development and sediment flux history by core-log-seismic integration.
List Previous Drilling in Area	

Section B: General Site Information

Site Name:	COR-06A	Area or Location:	Corinth Gulf, Greece
If site is a reoccupation of an old DSDP/ODP Site, Please include former Site#		Jurisdiction:	Greece
Latitude:	Deg: 38.17666707	Distance to Land: (km)	8
Longitude:	Deg: 22.71827271		
Coordinate System:	WGS 84		
Priority of Site:	Primary: ☐ Alternate: ✓	Water Depth (m):	861

Generated: 2017-08-18T10:47:52+00:00

Section C: Operational Information

	Sediments	Basement
Proposed Penetration (m):	750	0
Total Sediment Thickness (m)	1266	
Total Penetration (m):	750	

General Lithologies: Hemipelagic, gravity flow and fluvial muds, silts, sands, possible gravels at depth

Triassic-Paleogene carbonate expected

Coring Plan: (Specify or check)

APC ☑ XCB ☐ RCB ☑ Re-entry ☐ PCS ☐

Wireline Logging Plan:

Standard Measurements		Special Tools		
WL	☑	Magnetic Susceptibility	☑	Other tools:
Porosity	☑	Borehole Temperature	☑	
Density	☐	Formation Image (Acoustic)	☑	
Gamma Ray	☑	VSP (walkaway)	☐	
Resistivity	☑	LWD	☐	
Sonic (Δt)	☑			
Formation Image (Res)	☑			
VSP (zero offset)	☐			
Formation Temperature & Pressure	☐			

Other Measurements:

Estimated Days: Drilling/Coring: 20.4 | Logging: 3 | Total On-site: 23.4

Observatory Plan: *Longterm Borehole Observation Plan/Re-entry Plan*

Potential Hazards/ Weather:

Shallow Gas ☐	Complicated Seabed Condition ☐	Hydrothermal Activity ☐	Preferred weather window
Hydrocarbon ☐	Soft Seabed ☐	Landslide and Turbidity Current ☐	Relatively sheltered basin, therefore flexible
Shallow Water Flow ☐	Currents ☐	Gas Hydrate ☐	
Abnormal Pressure ☐	Fracture Zone ☐	Diapir and Mud Volcano ☐	
Man-made Objects (e.g., sea-floor cables, dump sites) ☐	Fault ☐	High Temperature ☐	
H_2S ☐	High Dip Angle ☐	Ice Conditions ☐	
CO_2 ☐			

Sensitive marine habitat (e.g., reefs, vents)

Other:

IODP Site Forms

Form 2 - Site Survey Detail

Proposal #: 879 - Add 2	Site #: COR-06A	Date Form Submitted:

Data Type	In SSDB	Details of available data and data that are still to be collected
1a High resolution seismic reflection (primary)		
1b High resolution seismic seismic reflection (crossing)		
2a Deep penetration seismic reflection (primary)	yes	Line: Ewing MCS Line 36 Position: CDP 460
2b Deep penetration seismic reflection (crossing)	yes	Line: Ewing MCS Line 23 Position: CDP 1623
3 Seismic Velocity	yes	Details of seismic velocity data available and velocity-depth profile applied here
4 Seismic Grid		
5a Refraction (surface)		
5b Refraction (bottom)		
6 3.5 kHz	yes	Shipboard 3.5kHz from Ewing profiles
7 Swath bathymetry	yes	HCMR Seabeam 2120 data for site
8a Side looking sonar (surface)		
8b Side looking sonar (bottom)		
9 Photography or video		
10 Heat Flow		
11a Magnetics		
11b Gravity	yes	Shipboard gravity from Ewing profiles
12 Sediment cores	yes	Details of piston cores in the gulf adjacent to proposed sites
13 Rock sampling		
14a Water current data		
14b Ice Conditions		
15 OBS microseismicity		
16 Navigation	yes	Navigation for primary and crossing seismic profile
17 Other		

Proposal #: 879 - Add 2	Site #: COR-06A	Date Form Submitted:

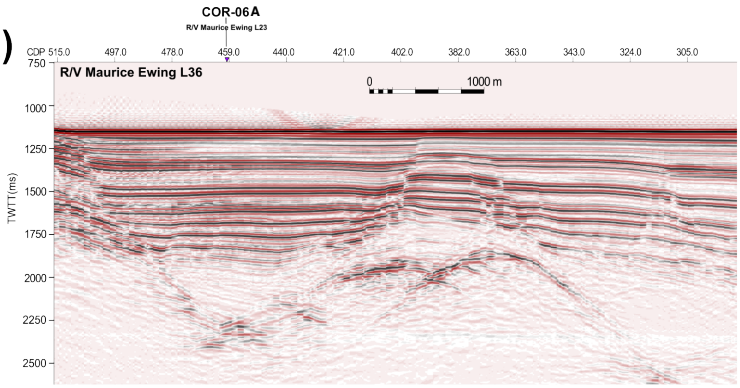
Pollution & Safety Hazard	Comment
1. Summary of operations at site	APC to refusal, then RCB, single hole coring. Drilling times not clearly known as an MSP, but average rate of penetration of 40m/day and expected drilling times used here are supplied by BGS/ESO.
2. All hydrocarbon occurrences based on previous DSDP/ODP/IODP drilling	None
3. All commercial drilling in this area that produced or yielded significant hydrocarbon shows	None
4. Indications of gas hydrates at this location	No
5. Are there reasons to expect hydrocarbon accumulations at this site?	No, insufficient burial, no known source formation within expected lithologies (based on onshore exposures and shallow cored sections)
6. What "special" precautions will be taken during drilling?	No special procedures needed
7. What abandonment procedures need to be followed?	No special procedures needed
8. Natural or manmade hazards which may affect ship's operations	None. Shipping traffic to and from the Corinth canal pass through this area, but local collaborators do not foresee any issues
9. Summary: What do you consider the major risks in drilling at this site?	No major risks

Proposal #: 879 - Add 2	Site #: COR-06A	Date Form Submitted:

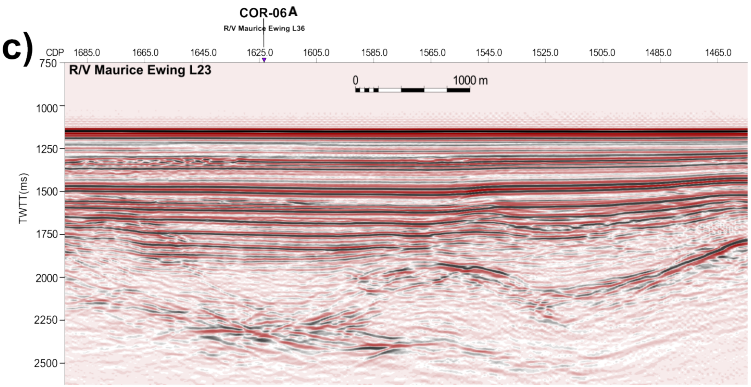
Subbottom depth (m)	Key reflectors, unconformities, faults, etc	Age (My)	Assumed velocity (km/s)	Lithology	Paleo-environment	Avg. accum. rate (m/My)	Comments
0 - 704	Seismic Unit 2 syn-rift interbedded hemipelagite and gravity flow deposits	0 - ~0.6	2.1	interbedded hemipelagite-gravity flow muds, silts, thin sands	marine-lacustrine silled basin	~1000	
704 - 750	Regional unconformity then uppermost Seismic Unit 1 syn-rift lake basin deposits	~0.6 - 0.8	2.6	muds, silts, sands, ?gravel of likely lacustrine origin	Probable lacustrine basin	unknown	

COR-06A

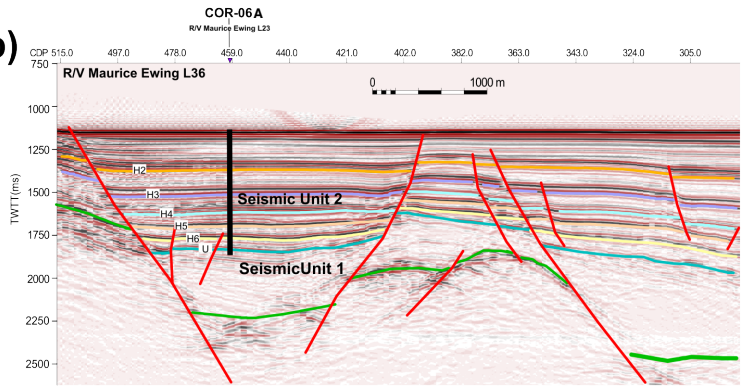
a)



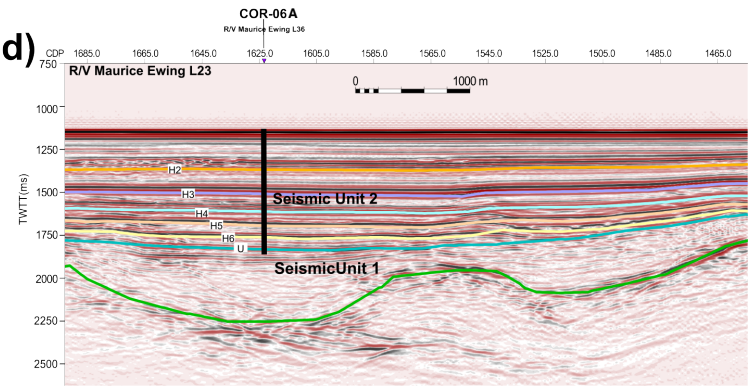
c)



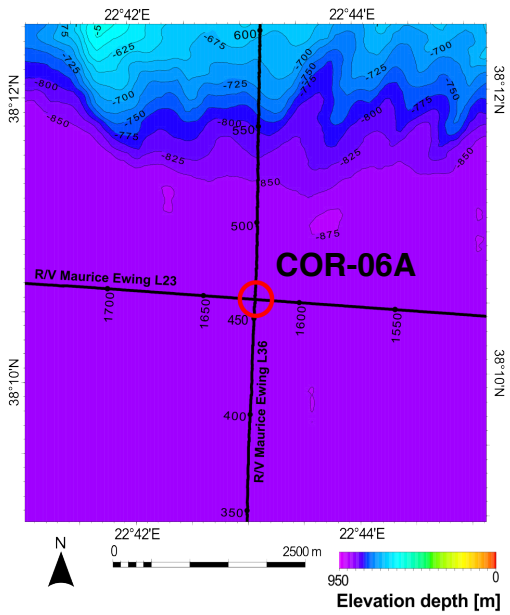
b)



d)



e)



COR-06A
Ewing L36, CDP 460 (a and b)
Ewing L23, CDP 1623 (c and d)

Files uploaded to SSDB:
Location map: COR-06A_location.pdf
Seismic figs:
COR-06A_L36_interp.pdf; COR-06A_L36.pdf;
COR-06A_L23_interp.pdf; COR-06A_L23.pdf
SEGY data: L36.sgy; L23.sgy
Navigation: L36_nav.txt; L23_nav.txt
Bathymetry: COR-06A_bathy.grd
Gravity: L36_grav.txt; L23_grav.txt
Velocity: Corinth_velocity_information.pdf
Piston cores: Corinth_piston_cores.pdf