United Nations Educational, Scientific and Cultural Organization

International Geoscience Programme

unesco Intergovernmental Oceanographic Commission

TERC

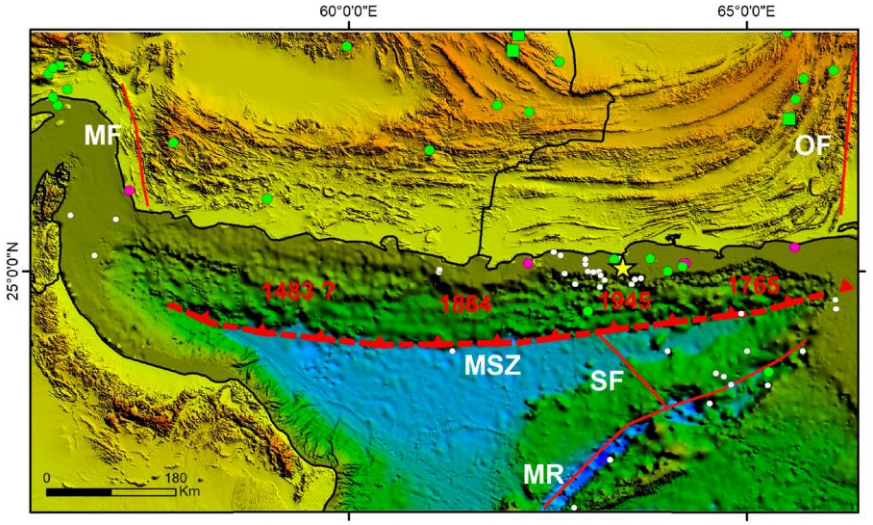
University of Hormozgan

ICG/IOTWMS Task Team on

"Scientific Tsunami Hazard Assessment of the Makran Subduction Zone"

IGCP 740 West Makran Paleo-tsunami Investigation

9th November 2021



Mohammad Mokhtari

Chair of NWIO-WG at IOC/IGC UNESCO

Leader of the IGCP 740 West Makran Plaeotsunami project

United Nations Educational, Scientific and Cultural Organization

International Geoscience Programme

Intergovernmental Oceanographic Commission

First workshop on the

IGCP 740 West Makran Paleo-tsunami Investigation

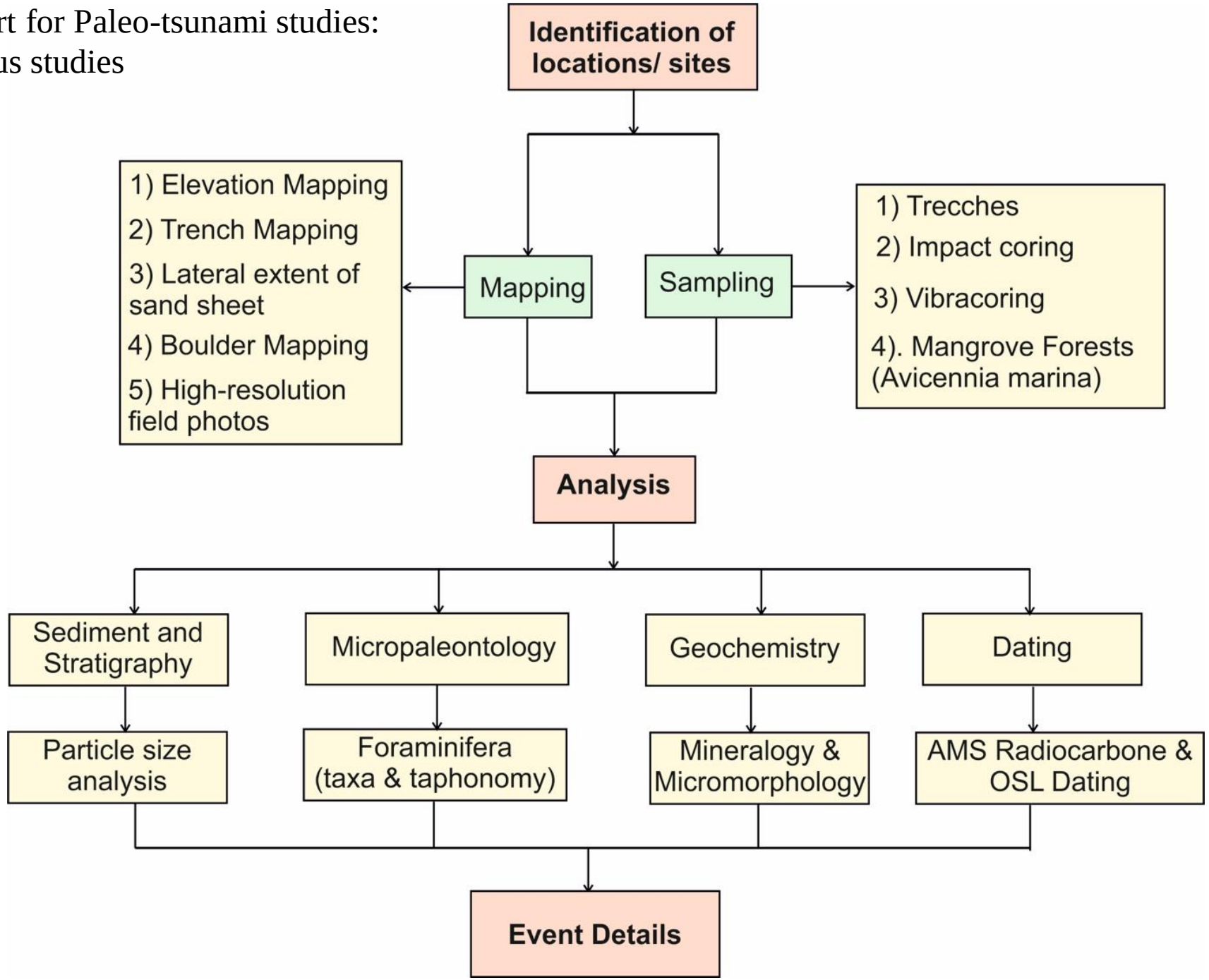
29 October, 2021

TERC

University of Hormozgan

Title	Time	Speaker
Opening Ceremony: Introduction about the project and the upcoming plan and support	20	**Dr. Özlem Adiyaman** (Director of UNESCO International Geoscience program (IGCP) secretariat) **Mr. Rick Bailey** (Head of Secretariat IOC-UNESCO Indian Ocean Tsunami Warning and Mitigation System) **Dr. Mohammad Mokhtari** (Chair of NWIO-WG at IOC/IGC UNESCO)
International Geoscience Program (IGCP): 50 years of worldwide capacity building, research support and sustainable development.	10	**Prof. Sobhi Nasir** (Chair of the UNESCO- IGCP)
MSZ seismicity	10	**Dr. Issa El-Hussain** (Director of Earthquake Monitoring Center, Sultan Qaboos University, Oman)
MSZ general tectonics	10	**Dr. Mehdi Masoodi** (Director of Tsunami and Earthquake Research Center -University of Hormozgan, Iran)
Towards comprehensive probabilistic tsunami hazard assessment in the Arabian and Red Seas and in Persian Gulf	10	**Dr. Andrey Babeyko** (GFZ, Germany)
Role of various coastal landforms in paleo-tsunami research	35	**Dr. Siddharth Prizomwala** (Institute of Seismological Research, India)
Discussion and future plan	20	All presenters/ participations
Summary and closing remarks	5	**Dr. Mohammad Mokhtari** (Leader of the IGCP 740 West Makran Plaeotsunami project)

General flowchart for Paleo-tsunami studies:
Based on previous studies

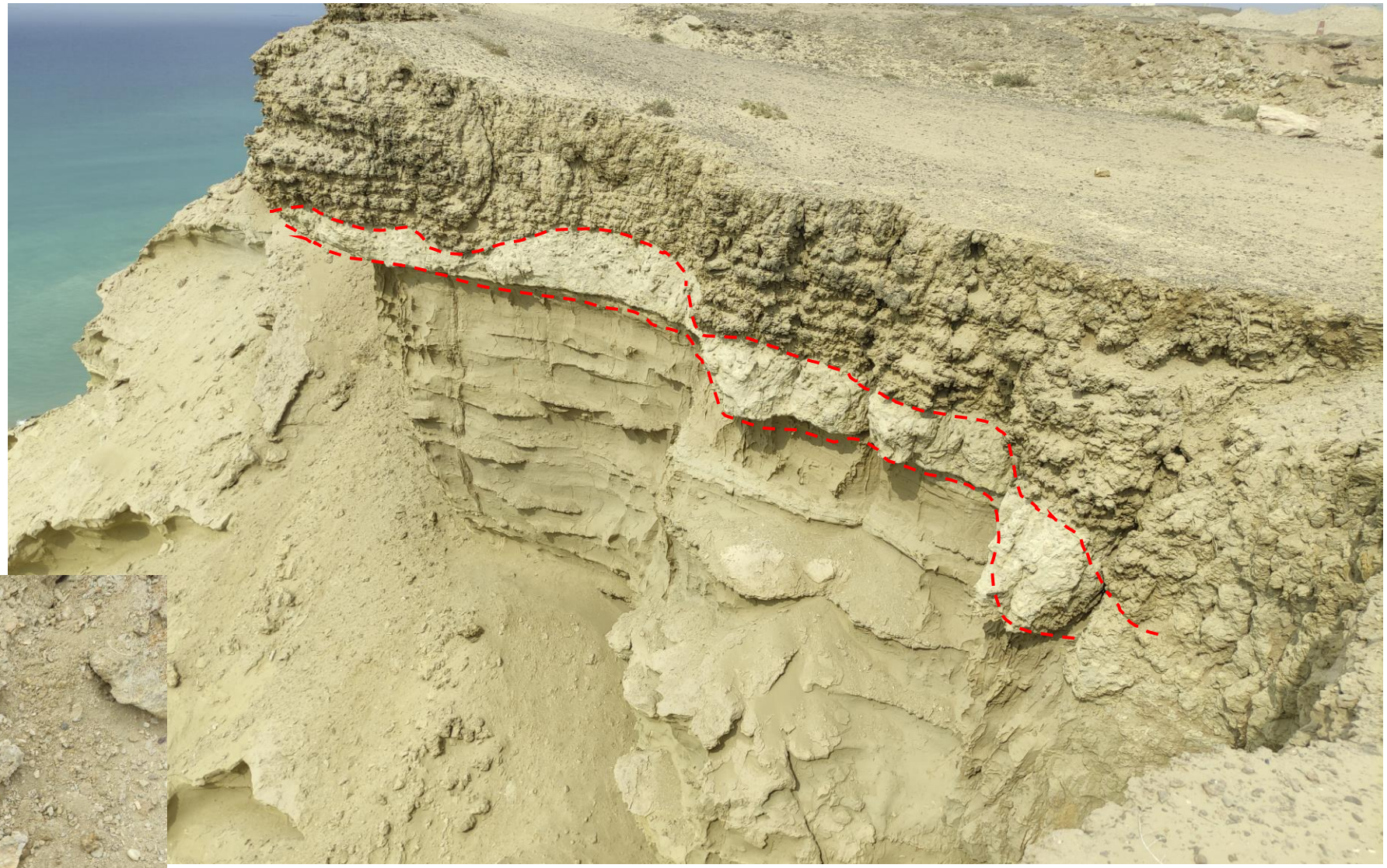


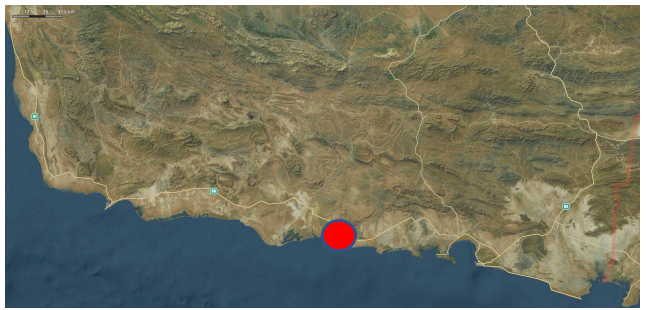
No.	Description of Stage	Duration (day)	1st year	2nd year	3rd year
Phase -1					
1	Litrature review (published papers and local reports)	60			
2	Revision of the methodology and final methodology selection	20			
Phase-2					
3	Kickoff meeting	2			
4	Preliminary filed visit & sites selection for trenching (Fig. ?)	30			
5	Final sites selection for trenching / training	30			
6	Trenching in 5 selected sites (20 trenches) / training	218			
7	Trench mapping & sampling/ training	120			
8	Sediment & Stratigraphy analysis in the trenches/ training	200			
9	Reporting and samples prepation	40			
Phase-3					
10	Dating & Geochemical analysis	210			
11	Data integration/ knowledge transfer	30			
12	Interpretation/ knowledge transfer	60			
13	Final report	40			
14	Technical meeting and decision making for extension of the project in Pakistan or Oman / knowledge transfer in regional sense	20			

Field visit for identification of potential locations effected by past Tsunami July and Auguste, 2021

Visited sites Selected sites for further work (trenching, sampling, Boulder …)

Occurrence of boulders along with bivalves out of life position with angular fragmented shells inside a layer with variable thickness

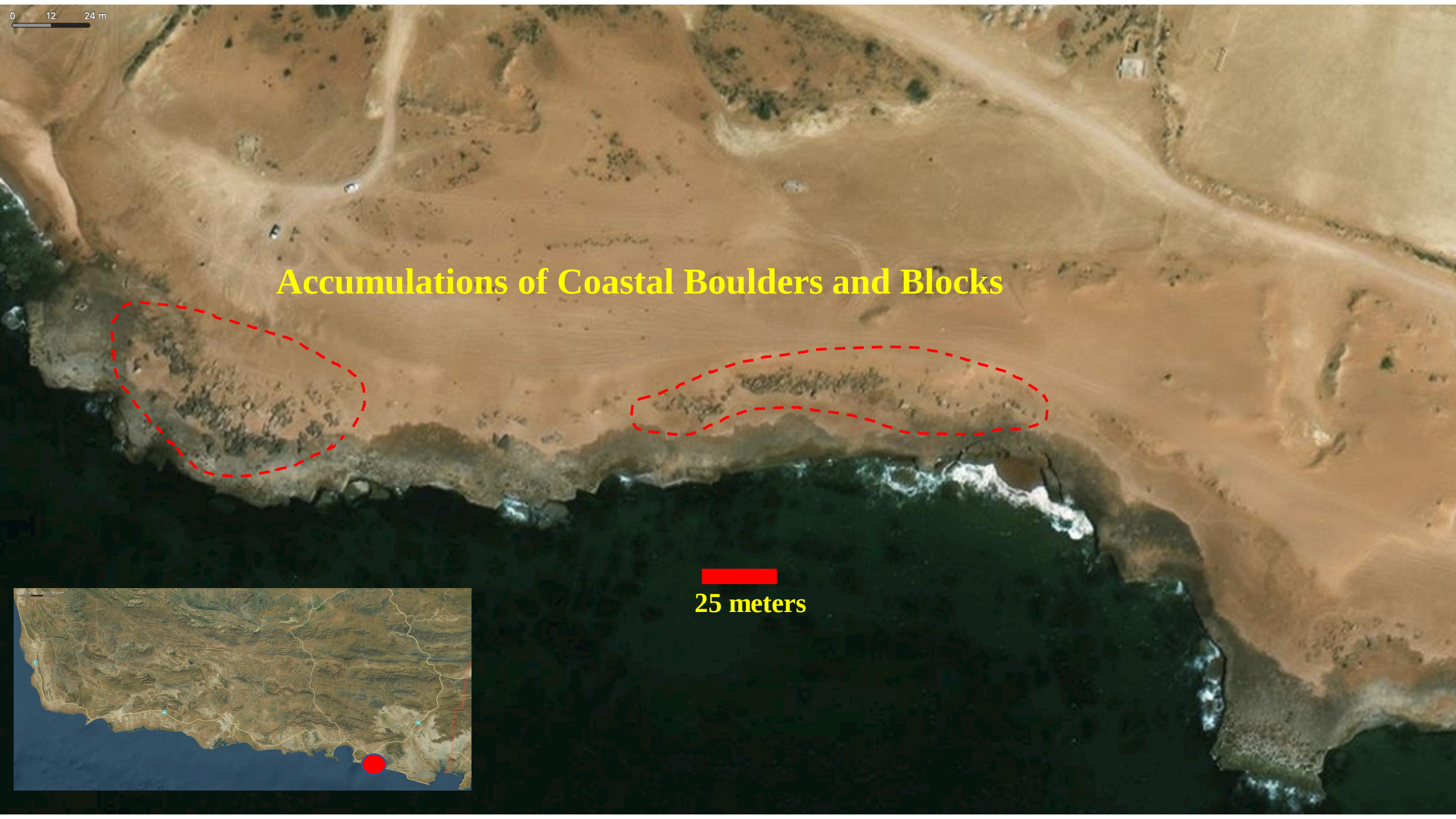




Use of Imbricated coastal boulder and block accumulations for identifying past high-energy tsunami events

Coastal Block

Imbricated coastal boulder


0 12 24 m
Accumulations of Coastal Boulders and Blocks
25 meters

Conclusions

- A total of 26 sites were visited, 7 sites and 20 trenches are planned for next step.
- Due to the distances between sites, the various geology of the region as well as the various tsunami evidence, different methods are needed to complete the paleo-tsunami studies of the region. We plan to invite more young scientist to participate at the field and further analyses.
- Combining the different evidence for tsunami occurance indicator in the region we believe will increase our accuracy in identifying the past events. The project will be extended to Pakistan and Oman at the later stages.
- In addition to trenching as classical tsunami sediment indicator, we will use the boulders and other evidence for expanding the chances of event identification.
- The result to be achieved will include in better understanding of tsunami 1 occurrence, 2 re-occurrence 3 estimate of their magnitude which can help in Mmax (maximum magnitude) estimation.