CORES ltd
Varna, Bulgaria

MARITIME & INLAND WATER ENGINEERING

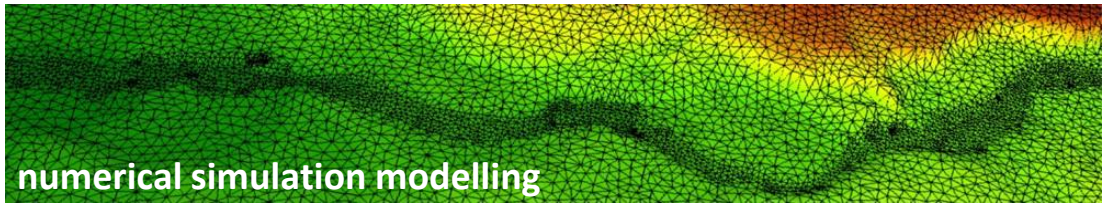
MONITORING

ENVIRONMENT

RENEWABLE ENERGY

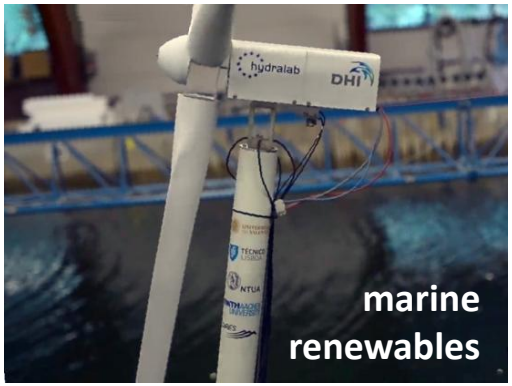
EU FUNDED RESEARCH

Valery Penchev
Manager



The Company

- CORES Ltd was established in 2008 in Varna, Bulgaria, start-up at Business Incubator (RAPIV) - Varna. It provides research, consultancy, engineering, field survey services, numerical simulation modelling, for coastal/river/ port engineering, aquaculture, environmental protection, and renewable energies.
- CORES employs dynamic staff of 5 - 8 persons, of which 4 are permanent top-qualified experts with post graduate degrees (2 Ph.D. and 2 M.Sc).
- CORES cooperates with a number of industries and research bodies in EU, and has participated several EU funded projects.



Main Product of the Company

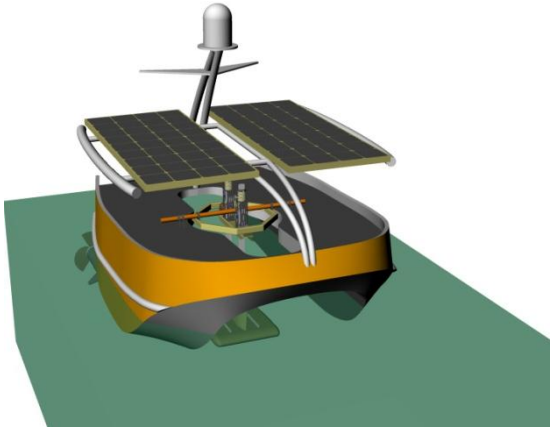
CORES-A1 is a solar driven USV, provided with relevant navigation & measurement equipment; managed remotely from the shore and transmitting data in real time.

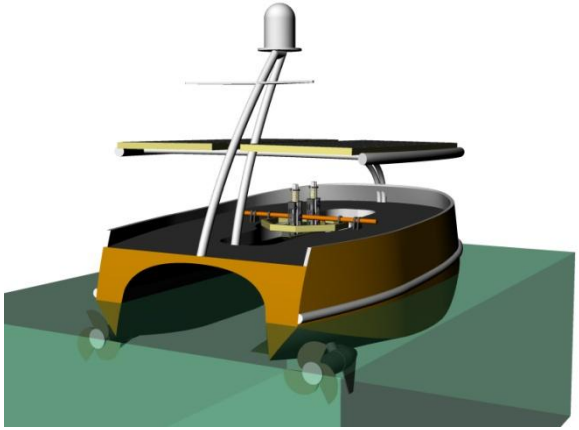
Revolution comes to ambient water-quality monitoring

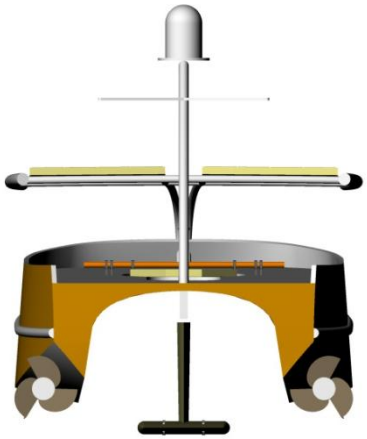
REPLACES SURVEY MOTOR BOATS: SAVES MONEY, SAVES THE ENVIRONMENT, BRINGS SECURITY!

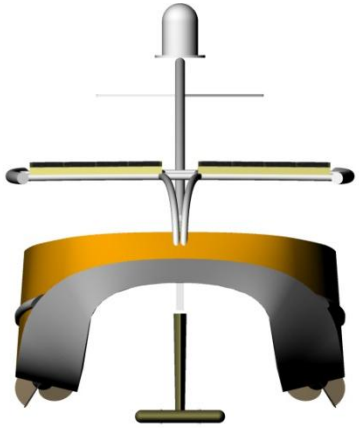
- Easy-to-use: operated by 1 person from the land + autopilot (self-steering)
- Fully autonomous in time: operates 24/7, day and night
- Navigation, GPS, echo sounder; current, turbidity, salinity, conductivity measurements; water sampling; underwater video capture, and much more
- Designed to access hard-to-reach locations (e.g. shallow water, dangerous sites)
- Perfect balance of power consumption, maneuverability, stability and pay-load
- Zero emissions: electric engines, enhanced solar power, smart battery charge

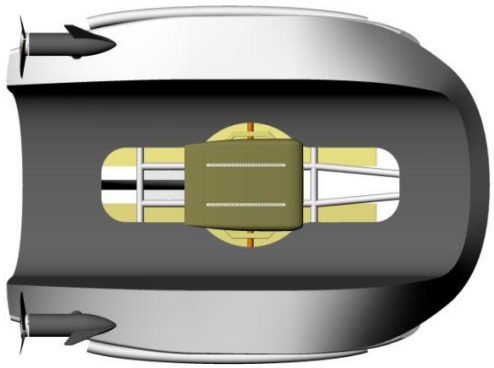
Solar USV Boat Design (3D visualisation)

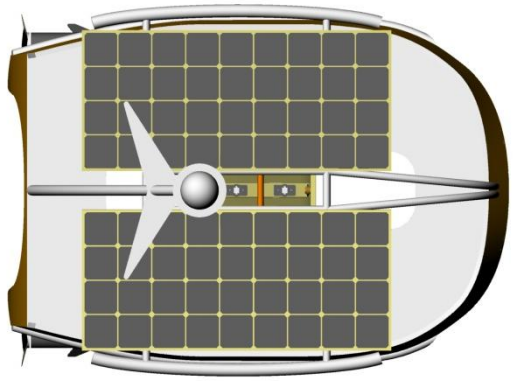












Product of the month, Feb 2017, MarketPlace WaterInnEU.org

- CORES-A1 overcomes:
  - ✓ Expensive costs of field survey works
  - ✓ Expensive costs of organising serial production
  - ✓ Risk to human life during field survey operations
  - ✓ Air pollution
- Why should the market be interested?
  - ✓ Substantial savings of survey (service) costs
  - ✓ Reduced risk of injury - no men onboard
  - ✓ Access to areas which standard survey vessels cannot reach (*shallow water, high levels vegetation, polluted waters etc.*)
  - ✓ Immediate (emergency) response (*nothing out there currently that can start measurements in remote locations in minutes, reaching the place by car traailer*)

Case Study (1)

Joint Demonstration :
SONTEK equipment & CORES-A1 boat

November, 2014,
Varna, BG

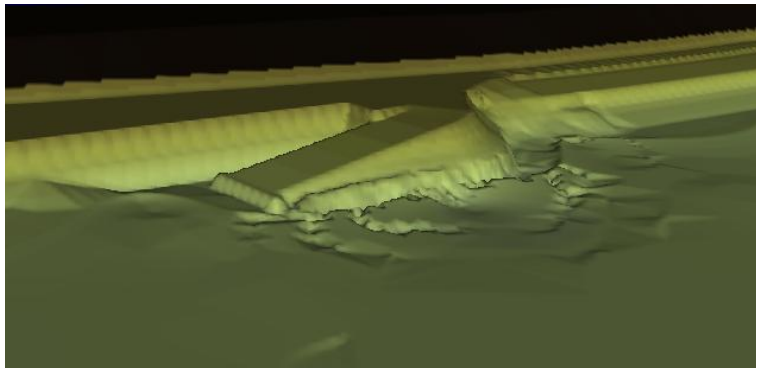
Case Study (2)

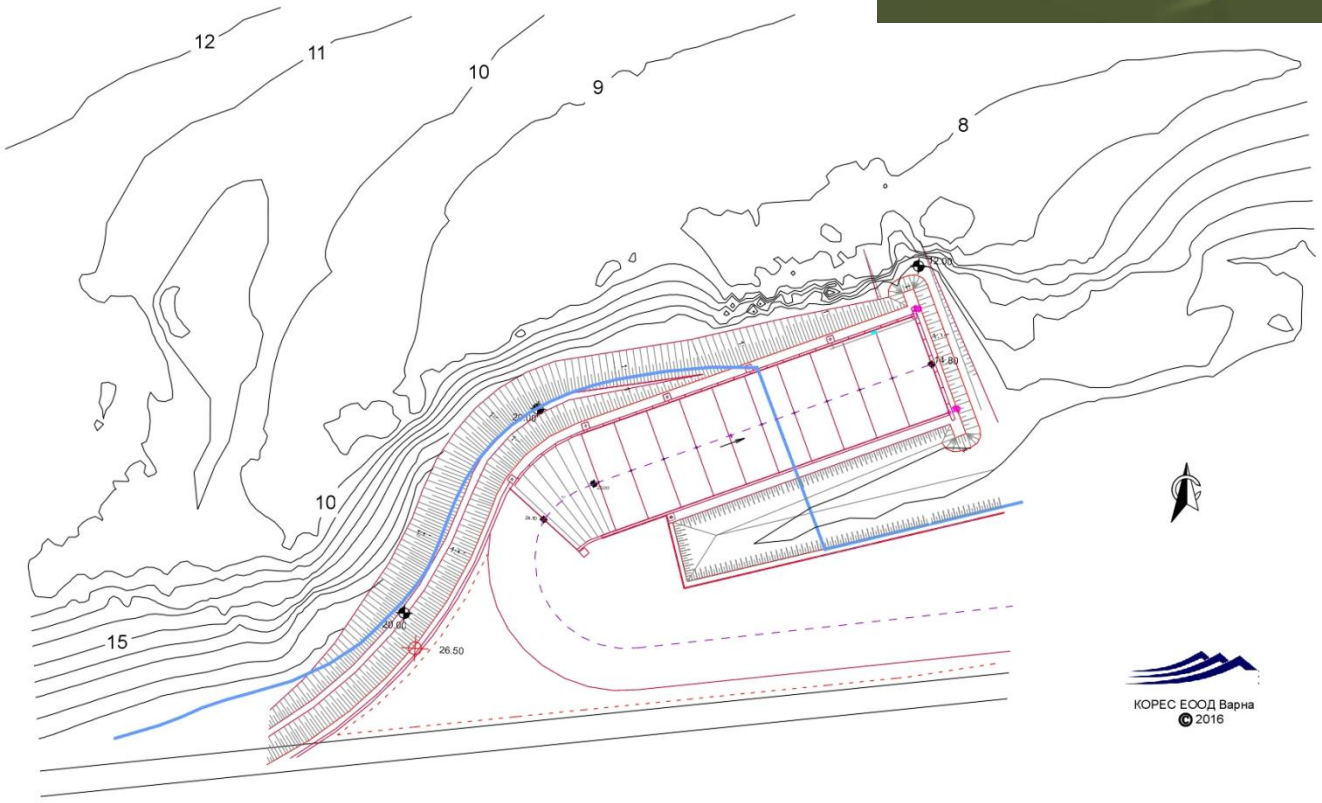
Hydrographic survey &
flow velocity measurements:
Ferry Slip Structure
Nikopol (Lower Danube)

June 2016

Case Study (3)

Hydrographic survey &
flow velocity measurements:
Ferry Slip Structure
Nikopol (Lower Danube)





June 2016

What are we looking for?

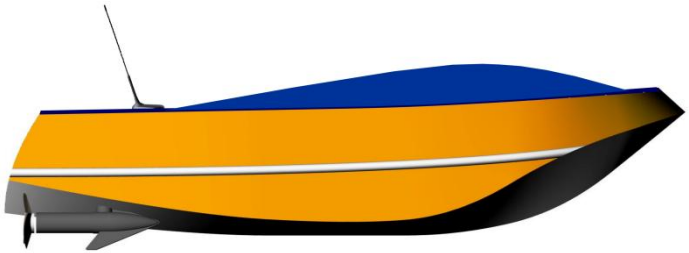
CORES-A1 (sales)

End users , in particular across the eastern Black Sea/Caspian area, and Asia/China, interested in purchasing units

CORES-A2 (development)

Co-funding and development partners, including partnership:

- With potential component manufacturers of sensors / ocean science equipment (incl. from Asia/China)
- Via joint project funded by international (e.g. EU funded R&I program)



ZEBCOM project (EU H2020)

- **PHASE 1** (Feasibilty Study including a Business Plan)
  6 months (74.000 EUR), completed 2016

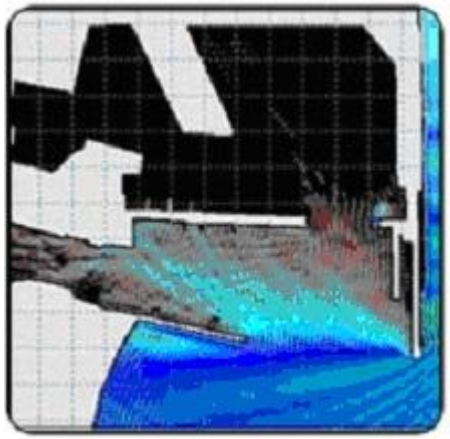
- **PHASE 2 (Commercialization)**

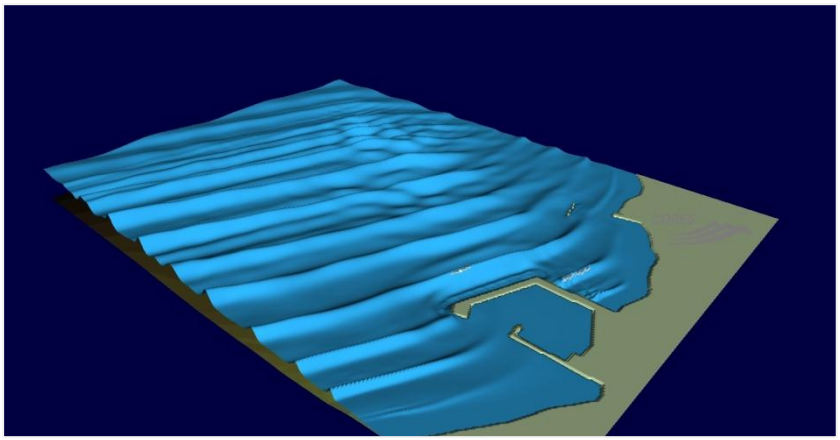
  Proposal, 2 years, Approx Budget 2.5 mln

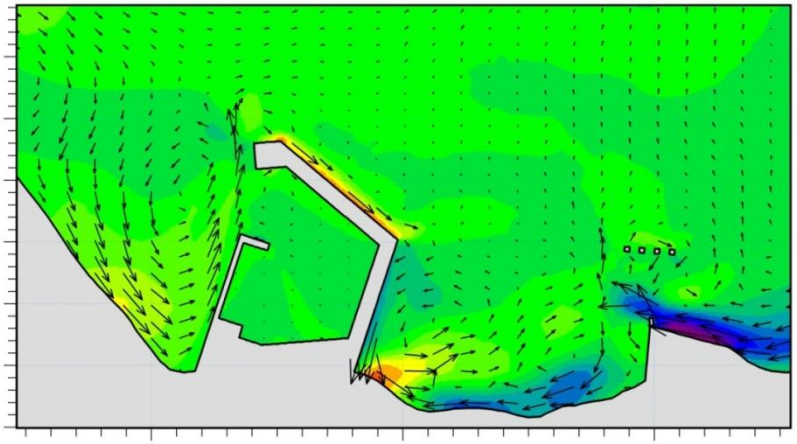
Co-funded by the Horizon 2020
Framework Programme of the European Union

Maritime Engineering Research & Consulting

- **New Fishing Harbor Varna (2016-2017)** MIKE by DHI software system used to establish a numerical model and provide a feasibility study including preliminary lay-out design
- **Wave Disturbance in Port of Varna - East (2016),** MIKE 21 BW model , assessment of waves into the port
- **Delivery of equipment & software (2016)**
  - Sediment sampling and other equipment, manufactured by KC Denmark - to Danube Maintenance Agency (FAIRWAY project)
  - Ocean science cable manufactured by MacArtney - to Institute of Oceanology
  - Wave climate data handling interface software from CORES to BSHC

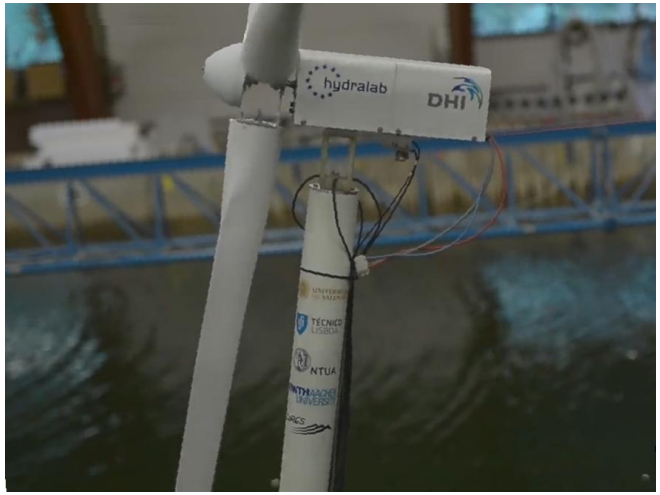


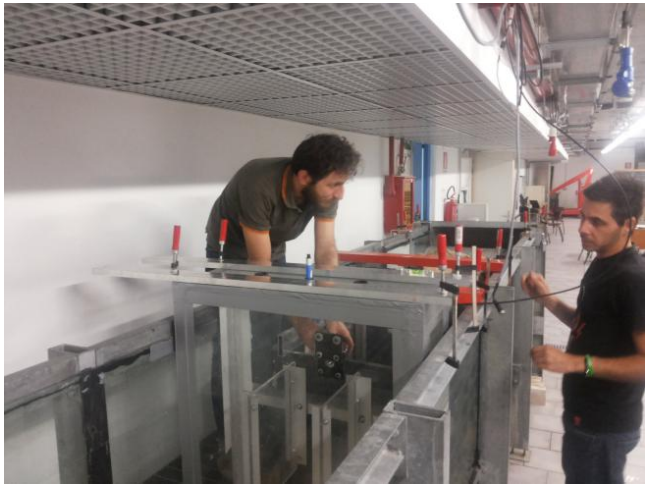




Marine Renewable Research

- **POWEC** (EU FP7 Marinet programme) Conceptual study on pressurized OWC wave energy conwerter (2015), with UNI-Florence, Italy
- **HYIV-WIND** (EU FP7 Hydralab Programme), Compaprative study on tension leg and spar buoy offshore wind turbine (2013), with DHI, DK
- **OPDEDYSP**(EU FP7 Marinet programme) “Optimising the design of dynamic scour protection around offshore foundations” (2012), IMDC, BE
- **INWEC** (industry – academia exchange, H2020 proposal)

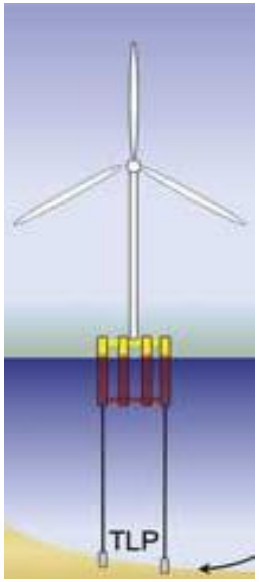


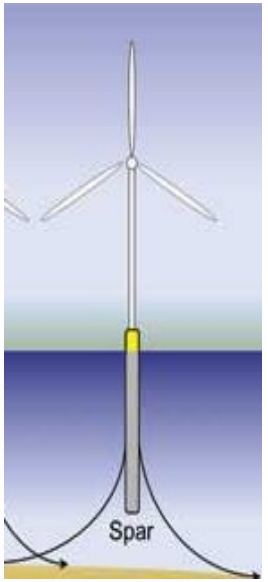


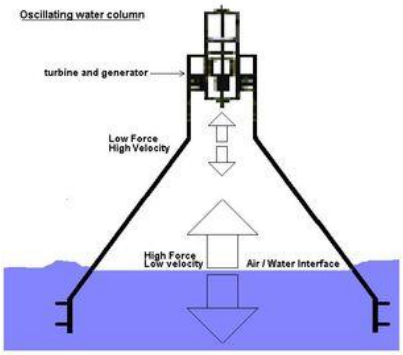
RENEWABLE ENERGY

(Future) Marine Renewable Research

Black Sea ?







Other EU Projects

Integrated transnational policies and practical solutions for an environmentally-friendly Inland Water Transport system in the Danube region (Jan 2017 – June 2019)

-Advise measures how to make ships better, to reduce air emissions; 10 partners (important Danube players PDM, PLOVPUT, DDNI, etc); 5 Associate Strategic partners (Danube Commission, MT RO, MA BG)

Regional Cooperation for Reducing Black Sea River Basin Pollution (June 2013 – June 2015)

Among other tasks, 1 year ambient water monitoring was done along Kamchia River in Bulgaria, using CORES-A1 boat

MacArtney UNDERWATER TECHNOLOGY in Bulgaria

Non-exclusive reseller CORES ltd

Assisted by Marine Cluster Bulgaria, Geopont ltd, IO-BAS

SALES

Cables& Connectors

Ocean Science & Underwater equipment

Ship equipment

SERVICES

Hydrographic survey

Ambient water monitoring

(System) Engineering consultancy

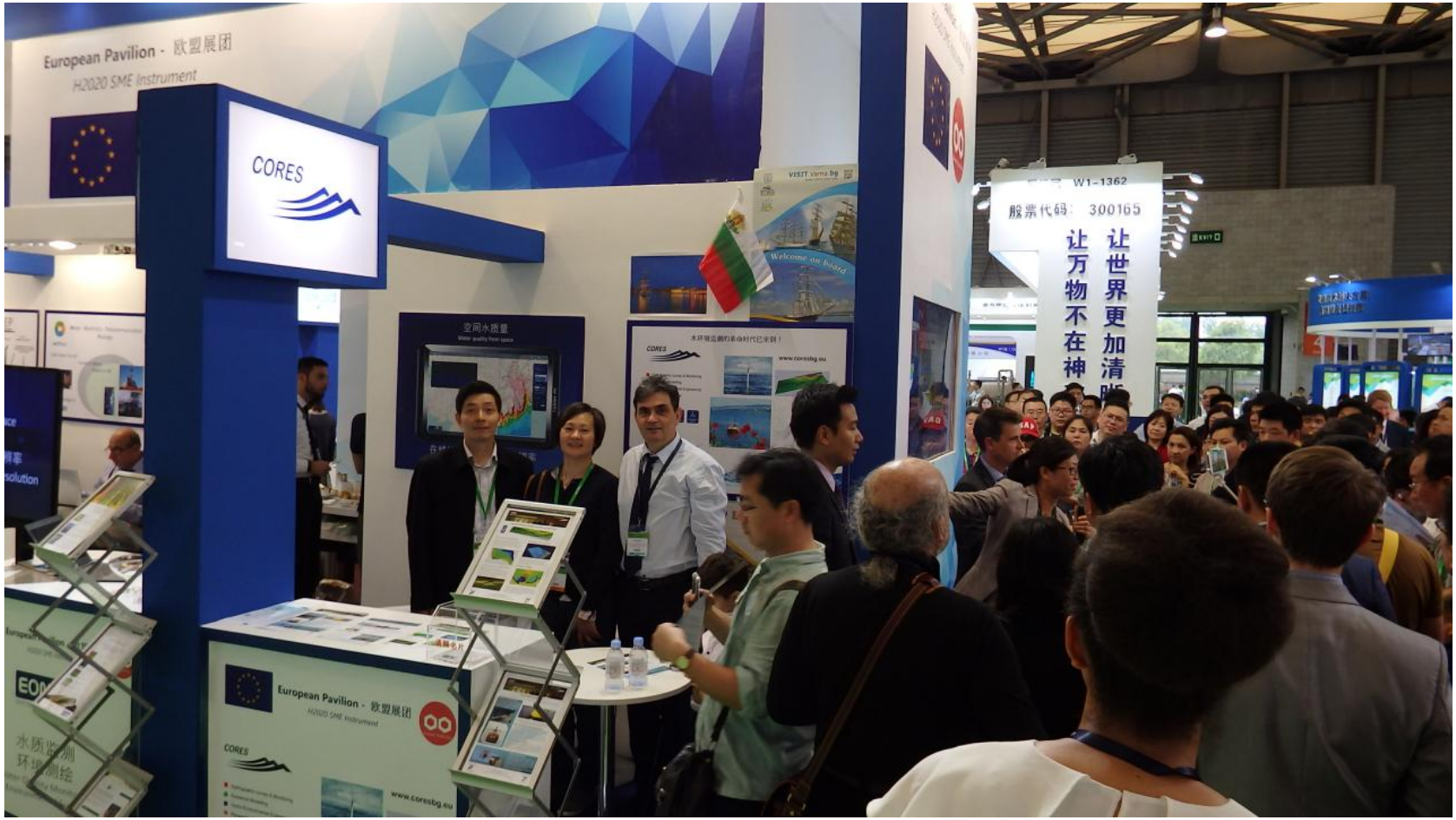
EU FUNDED RESEARCH (R&I)

Water Monitoring (ref EModNet)

Renewable energies

CORES at IE Expo Shanghai 4-6 May 2017

- Participation supported by the EC (Co-Exhibitor of EASME)
- 5 sq.m booth, Promotion materials, Business Arrangements, Matchmaking ….
  (Ref to MacArtney ?)



CORES at IE Expo Shanghai 4-6 May 2017

Follow the story at:
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Thank you