



## FIBRE OPTIC POST TRENCHING PROJECT

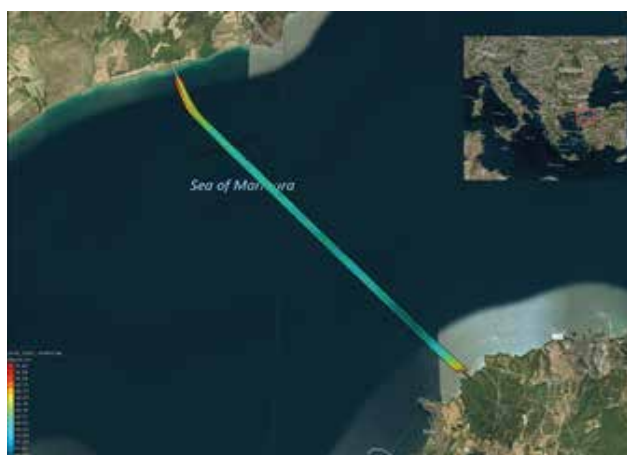
### Trans Anatolia Natural Gas Pipeline (TANAP)

#### Project Details

Location:	Sea of Marmara, Turkey
Water Depth:	68m
Date:	April - June 2018
Client:	IKM-AES-SAPURA ENERGY

#### Scope Of Work

iSURVEY Pte Ltd (ISFE) was contracted by IKM Pte Ltd to provide survey and positioning services onboard M/V Topaz Commander to support trenching operations of four fibre optic cables (FOC) at the Sea of Marmara, Turkey. The cables are part of the TANAP Gas Pipeline project that crosses the Sea of Marmara, close to the northern end of the Dardanelles, Turkey. The FOC installed are two SOCAR 192 cores and two TANAP 48 cores from Anatolian Shore to Europe Shore.



Trans-Anatolian Gas Pipeline (TANAP)

iSURVEY scope of work involved provision of:

- Survey and positioning of M/V Topaz Commander
- Subsea positioning by USBL system of trencher and ROV systems during the post trenching operation
- Provision of shore-based cable tone generation
- Post trench ROV survey by TSS 350 cable tracker
- Final post trench depth of burial and as-built survey
- Data processing and reporting of the trenching depth integrated with EIVA suite



M/V Topaz Commander

The cables cross the shipping channel separating the Anatolian and European landfalls each side of the Sea of Marmara. Each cable crosses four existing cables with each crossing protected by Rock Berms.



Cable Tracker Installation on the Merlin WROV

A combined iSURVEY iNAV® and iROV® system provided positioning and navigation system for the M/V Topaz Commander and Merlin WR200 IKM WROV systems. A TSS 350 cable tracker output was integrated with altimeter data, for cable depth monitoring during the FOC trenching operation, and post trenching survey.

Water depths along the cable routes ranged between 0m at the landfall points to a maximum of 68m below LAT at the shipping channel. Operations were limited to the safe working depths of the vessel, trencher and ROV.

The custom solution as requested by the client, provided accurate depth of burial information on a near real time basis. For operational reasons, the work was performed in sections over all four cables as tide, current and operational logistics required.

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