



MENAS MARITIME OPERATIONS MENAS SERVICES





BACKGROUND

For over 100 years, Middle East Navigation Aids Service (MENAS) has played a major role in the safety of shipping in the Arabian Gulf and in the development of Aids to Navigation infrastructure throughout the Gulf States. Formerly named the Indian Marine Service, then the Persian Gulf Lighting Service in 1951 and later renamed the Middle East Navigation Aids Service (MENAS). It was established to be the responsible authority for Aids to Navigation in the region.

MENAS is a unique organization with intimate knowledge of the Arabian Gulf's port approaches, channels and navigational hazards. It is the only independent Aids to Navigation authority in the world, with no country affiliation or national sponsor. It is currently the Gulf region's leading innovator in the development of AtoN department, AtoN consultation, DGPS, AIS, risk mitigation, training, AtoN remote monitoring, supply and maintenance of Aids to Navigation (AtoN).

MENAS owns and maintains an extensive network of buoys, lighthouses and DGPS transmitters. It also provides essential information and advice such as the issuance of Notices to Mariners, advising on hazards to shipping and co-ordinating additions to navigation charts for the Gulf. Over 2,000 vessels rely upon MENAS equipment and services each month.

MENAS is the operational division of the UK-based 'International Foundation for Aids to Navigation' (IFAN), MENAS operates an ISO quality-assured service, certified by Lloyd's Register Quality Assurance and is an associate member of International Association of Lighthouse Authorities (IALA). It is also a corporate member of the International Marine Contractor Association (IMCA) and maintains active links with various other organisations and hydrographic offices worldwide.



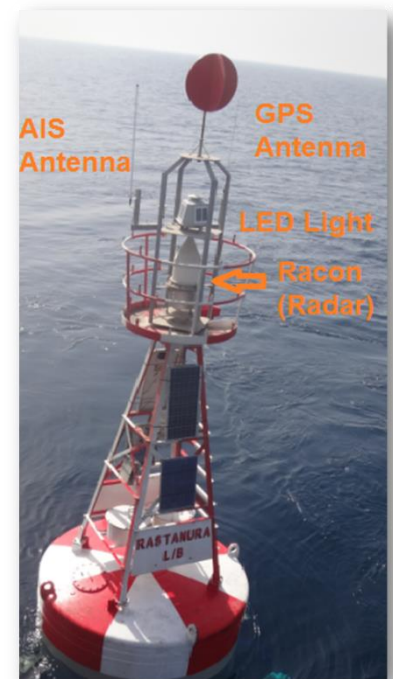


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SERVICES

AIDS TO NAVIGATION

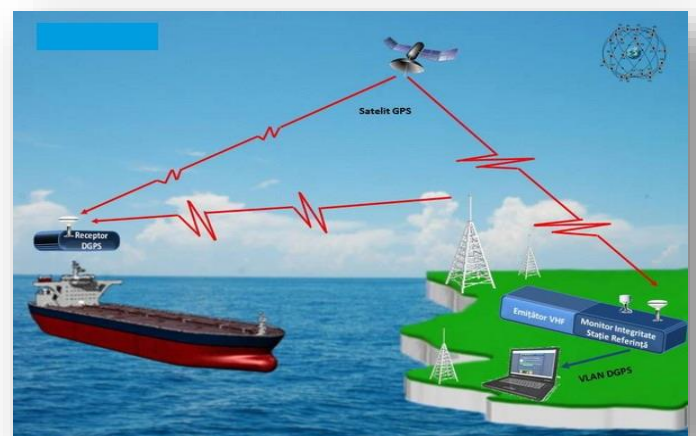
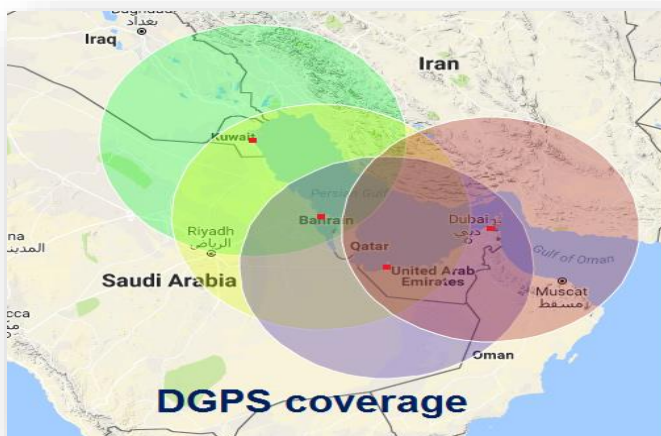
MENAS owns and maintains an extensive network of navigation beacons, buoys and lighthouses across the Arabian Gulf and its approaches. The system consists of lateral, cardinal, isolated danger, safe water marks, an emergency wreck buoys, lighthouses and Beacons that all serve the marines in the Gulf. These are essential in providing visual orientation and spatial awareness for safe navigation of vessels, providing hazard, channel and waypoint marking. MENAS also provides maintenance services and quality management practices for AtoNs considered essential for international shipping and owned by governments and port authorities throughout the Gulf.



MENAS DIFFERENTIAL GLOBAL POSITIONING SYSTEM (DGPS)

Since 1997, MENAS established and continues to operate a free-to-air differential global positioning system (DGPS) for the region. MENAS DGPS System comprises of a network of four ground-based reference stations providing transmissions with coverage of at least 250 nautical miles and 100% redundancy along the littoral states of the Gulf with an accuracy of less than 1 m.

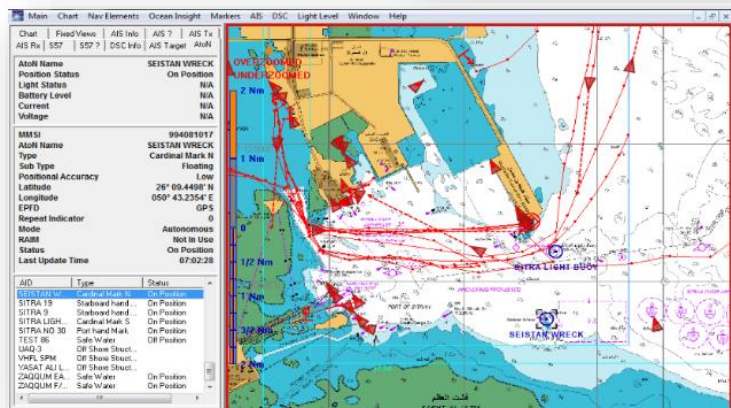
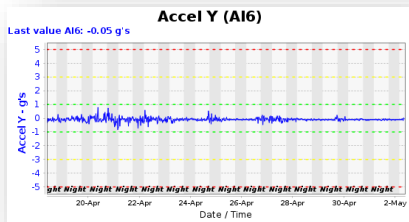
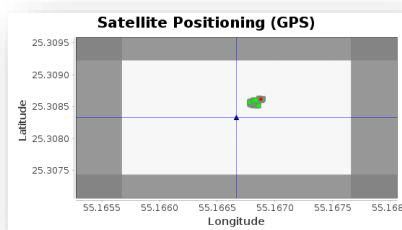
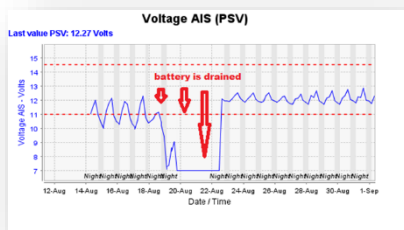
It is an open (free-to-air) system - available to all marines which assist the safe passage of all classes of vessels by monitoring the integrity of the US NAVSTAR Global Positioning System (GPS), thus improving accuracy for safe navigation in waters where the freedom to manoeuvre is restricted.





AIS & SATELLITE ATON REMOTE MONITORING

MENAS installed Automatic Identification System (AIS) & Satellite Monitoring Systems on all its AtoN network to enhance the service to mariners and to improve performance monitoring of AtoNs where MENAS Operation Centre records in daily basis the status, performance and reliability of the AtoNs.



NAVIGATIONAL WARNINGS NAVTEX

MENAS is the Acting Sub-Area Co-ordinator for NAVAREA IX (the Arabian Gulf and its Approaches) co-ordinating a NAVTEX service within the framework of the WWNWS system established jointly by the International Hydrographic Organisation (IHO) and the International Maritime Organisation (IMO). NAVTEX is an international automated direct-printing service for promulgation of navigational and meteorological warnings and urgent information to ships. The system fulfils an integral role in the Global Maritime Distress and Safety System (GMDSS) developed by the International Maritime Organization (IMO).



NOTICES TO MARINERS

Notices to Mariners provide essential, up to date information and advice to mariners navigating within the Arabian Gulf. Subjects include (but are not limited to) notification of works and events, which may impact on navigation of a permanent or semi-permanent nature. Each Notice specifies the original source of the information and refers to the British Admiralty Chart(s) affected by the Notice. MENAS also issues a monthly Summary of its Notices to Mariners, which ensures dissemination of information to all major hydrographic offices worldwide

The Notices, Navtex & the monthly summaries can be downloaded from MENAS website

<http://menas.org/notices>



COMMERCIAL MARINE ENGINEERING

With a long history of expertise and intimate knowledge of the maritime navigation requirements of the Gulf, MENAS provides engineering services to port authorities and private sector industry with marine infrastructure requirements. Engineering solutions include the design, fabrication, supply and maintenance of AtoNs; buoys; shallow or deep-water mooring systems and berthing structures. MENAS offers technical expertise in the design and installation of AIS and monitoring systems and is the only independent DGPS installation engineer in the Gulf. MENAS is expanding this activity by recruiting suitable qualified and experienced personnel to expand throughout the Gulf, Eastern Africa and the Indian sub-continent.

MENAS engineering solutions include the design, fabrication, supply and maintenance of AtoNs; buoys; shallow or Deepwater mooring systems and berthing structures, besides being the only independent DGPS installation engineer in the Gulf.

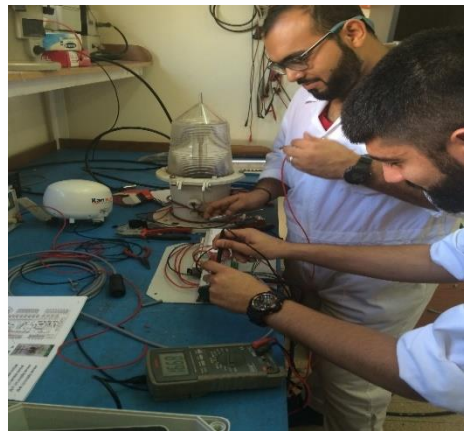


MENAS MARITIME OPERATIONS MENAS SERVICES

TRAINING AND USER CONSULTATION

MENAS consults with user groups and other stakeholders in the formulation of policy, to ensure that Aids to Navigation in the Arabian Gulf waters meet both the requirements of mariners, and comply with internationally accepted standards. Reviews of Aids to Navigation procedures are conducted on a regular basis, with consultation to a wide range of users during the review process. Periodic risk assessments are undertaken, as port and waterway use develops, requiring change to infrastructure.

With suitably qualified personnel capable of providing the highest level of training under IALA certification (Level 1 AtoN Managers certificate). MENAS provides marine consultancy and IALA-endorsed Aids to Navigation training to various entities: For example, MENAS assisted with the establishment of AMNAS as the AtoNs service provider company in Oman and, in Abu Dhabi, with the establishment of an ADPC AtoN Division to form an Aids to Navigation service provider for Abu Dhabi waters.





MENAS MARITIME OPERATIONS MENAS SERVICES

INTERNATIONAL STANDARDS

MENAS maintains a documented quality system of policies, procedures and instructions, which are reviewed on a regular basis by the Board of Directors and has established and maintained operational and contractual performance standards for its services.

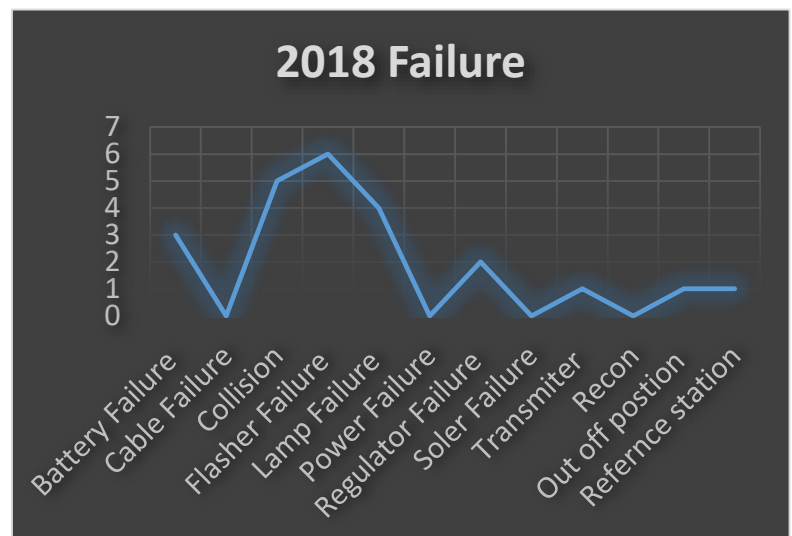
It is MENAS policy to comply where appropriate with the recommendations and guidelines issued by the IALA. MENAS is fully committed to implementing the principle set out in SOLAS Chapter V Regulation 13 of providing, either alone or with others, 'such aids to navigation as the volume of traffic and the degree of risk requires' in its historic operational areas.



LEVEL OF SERVICE

Availability statistics for MENAS equipment are measured in terms of Mean Time Between Failure (MTBF). The marine lanterns, Automatic Identification Systems (AIS) and radar beacons (Racons) fitted to all IALA Category 1 MENAS AtoN will be available to the Mariner for at least 998 days in any 1000 day period. Category 2 and Category 3 AtoN will be available to the mariner for 990 and 970 days respectively in any 1000 day period.

MENAS Availability statistics for its DGPS chain are measured in terms of 'Mean Time Between Outages'; outages include both planned and corrective maintenance periods. The MENAS DGPS service will be available to the Mariner for at least 728.5 days in any 730 day period and will provide a positional accuracy of better than 10 meters (2 drms) throughout the coverage area of the beacon system. This will be maintained by integrity checks on transmitted data, system operation and broadcast quality in near real-time (less than 6 seconds).





MENAS MARITIME OPERATIONS

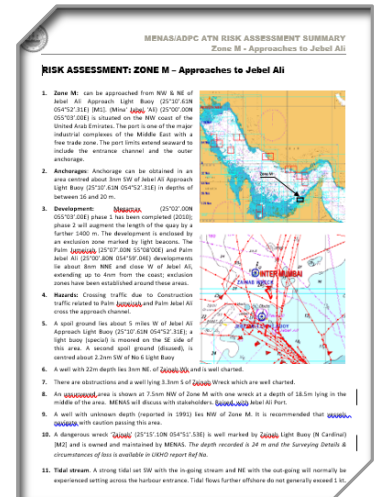
MENAS SERVICES

RISK MITIGATION

MENAS conducts individual AtoN risk assessments for each area of activity undertaken by using IALA certified risk Management tools. MENAS AtoNs are grouped into 19 zones, determined through usage factors such as whether they provide mariners guidance in a specific area or whether they mark an isolated or specific danger.

MENAS' Operation PLAN covers the factors used to determine the risk to persons, facilities ashore and the coastal environment; shipping, seafarers and the marine environment based on the principle that the failure of a single AtoN unit would not significantly increase the risk to safe navigation in the 19 zones under consideration.

For each zone, a Level of Service statement (LOS) for the type of appropriate AtoN has been developed together with an Operational Performance Statement (OPS) which defines the maximum operational capability of an AtoN within that zone. The combination of LOS for type and Operational Performance statements provide a commitment by MENAS to all mariners navigating in each zone.

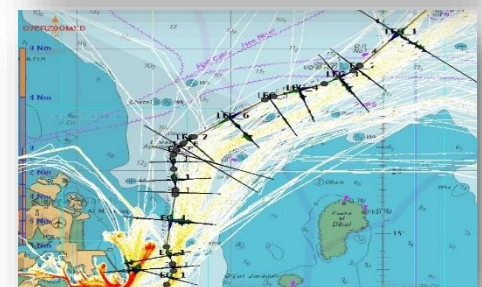


MENAS AtoN RISK ASSESSMENT SERVICE (RAS)

MENAS uses its resources with IALA IRAWP MK II, SIRA risk tools, AIS data, and other marine publications to study and calculate the probability of collision or grounding of all types of vessels operating in the main waterways of the Arabian Gulf. This service is provided commercially and upon the request of the concerned parties in these waters.

The study focuses on:

- Plotting traffic density in the area in according to the vessels type & size.
- Measuring the probability of risks.
- Calculating the availability of AtoNs/systems.
- Optimizing the quantity of AtoN required for the area.
- Categorisation of AtoNs upon each AtoNs navigational significance (Cat 1, Cat 2 & Cat 3).





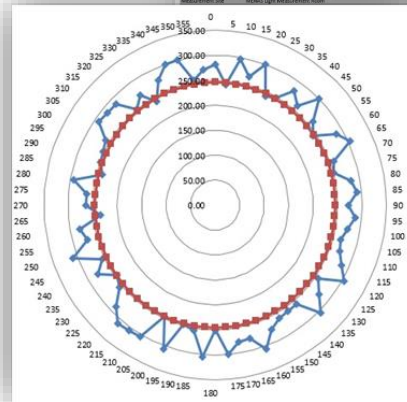
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MENAS LIGHT INTENSITY

MENAS developed a motorized light intensity facility for testing and ensuring that marine lanterns operation on its maximum potentials, the facility developed in accordance with IALA guidelines and recommendations.



Intensity vs. Angle α (symmetric α)		Light Intensity Test Report	
Test No.	022.01	No.	2
Station No.	00101	Diagonal	3.50
Reference	00000	Minimum (1st 20' angle)	40.31
Engineer in Charge	M. Alsharif	Intensity	50.76
Date	9/10/2014	20'	1.00
Time	10:24:33	40'	1.00
Temperature	25.5	60'	1.00
Humidity	55%	80'	1.00
Lantern Type	9000-01	100'	1.00
Lot No.	1000	120'	1.00
Plate No.	06-5077	140'	1.00
Plate Date	07/1/2000	160'	1.00
Plate Size	150	180'	1.00
Vertical Reading (V)	11.11	200'	1.00
Accelerometer Reading (A)	2.5	220'	1.00
Equipment	2.5	240'	1.00
Manufacturer	2.5	260'	1.00
Manufacturer Address	2.5	280'	1.00
Manufacturer Contact	2.5	300'	1.00
Manufacturer Email	2.5	320'	1.00
Manufacturer Phone	2.5	340'	1.00
Manufacturer Fax	2.5	360'	1.00
Manufacturer Website	2.5	380'	1.00
Manufacturer Email	2.5	400'	1.00
Manufacturer Phone	2.5	420'	1.00
Manufacturer Fax	2.5	440'	1.00
Manufacturer Website	2.5	460'	1.00
Manufacturer Email	2.5	480'	1.00
Manufacturer Phone	2.5	500'	1.00
Manufacturer Fax	2.5	520'	1.00
Manufacturer Website	2.5	540'	1.00
Manufacturer Email	2.5	560'	1.00
Manufacturer Phone	2.5	580'	1.00
Manufacturer Fax	2.5	600'	1.00
Manufacturer Website	2.5	620'	1.00
Manufacturer Email	2.5	640'	1.00
Manufacturer Phone	2.5	660'	1.00
Manufacturer Fax	2.5	680'	1.00
Manufacturer Website	2.5	700'	1.00
Manufacturer Email	2.5	720'	1.00
Manufacturer Phone	2.5	740'	1.00
Manufacturer Fax	2.5	760'	1.00
Manufacturer Website	2.5	780'	1.00
Manufacturer Email	2.5	800'	1.00
Manufacturer Phone	2.5	820'	1.00
Manufacturer Fax	2.5	840'	1.00
Manufacturer Website	2.5	860'	1.00
Manufacturer Email	2.5	880'	1.00
Manufacturer Phone	2.5	900'	1.00
Manufacturer Fax	2.5	920'	1.00
Manufacturer Website	2.5	940'	1.00
Manufacturer Email	2.5	960'	1.00
Manufacturer Phone	2.5	980'	1.00
Manufacturer Fax	2.5	1000'	1.00



Membership/Affiliates:

