

# Happy new year

## I wish the best for all of you





# **GLOSS**

## **Training Course**

### **for Operators of Sea Level**

### **Stations**

**17 - 21 March 2014, Bangkok, Thailand**

# I.R.IRAN

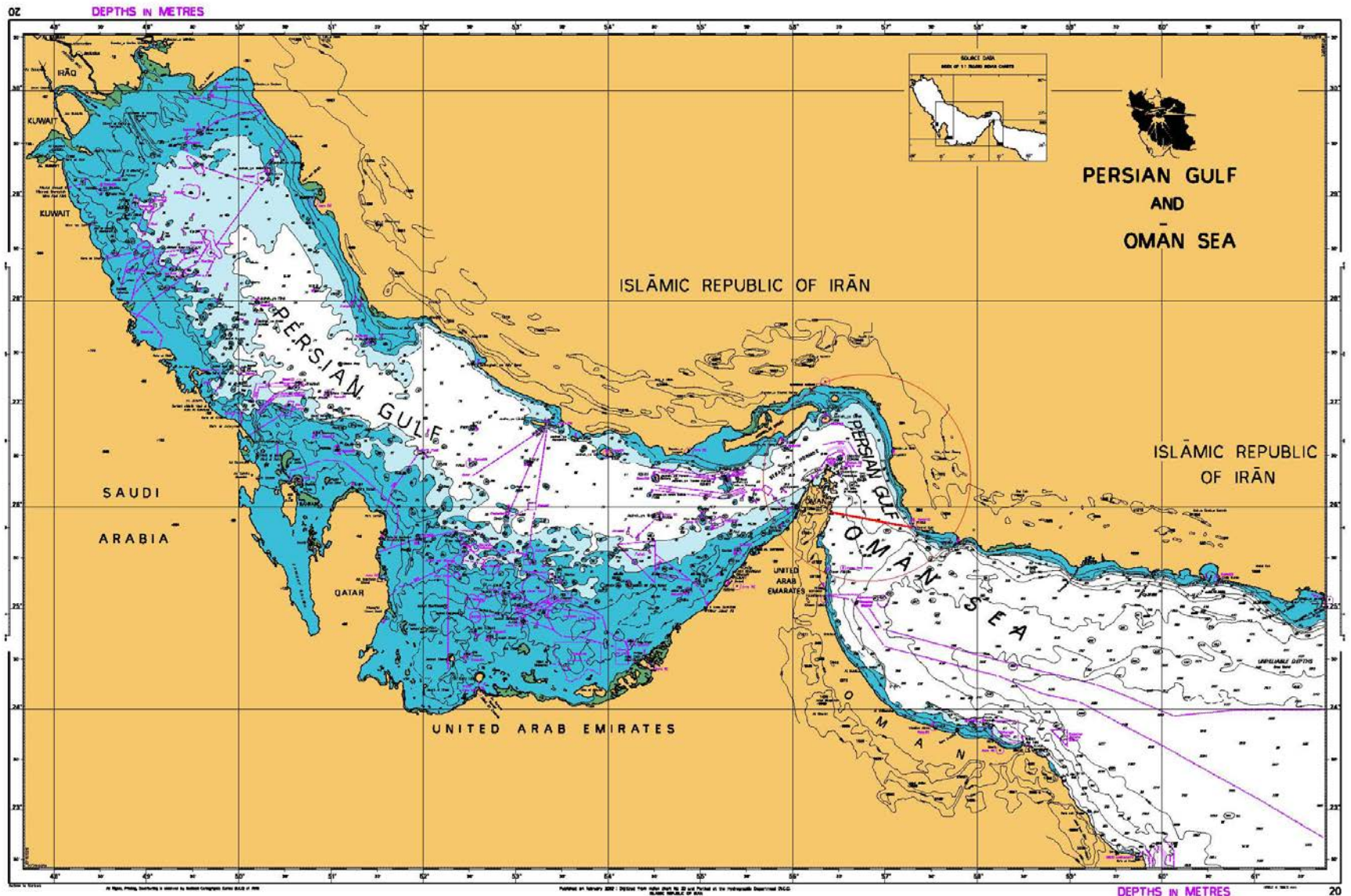


## National Report of Sea Level Monitoring



National Cartographic Center  
Hydrography Department  
Rahi foroughi

# Persian Gulf & Oman Sea



# Tidal application

- Bathymetry Reduction
- Tidal prediction
- Safe navigation
- To save money in harbors and channels maintenance
- To determine Base line for Maritime Boundary Delimitation
- Coastal zone management
- New Jetties and Port installations
- Off shore activity

# Oceanographic Instruments

- Different Type of Tide Gauges  
(Floater- Ultrasonic-Radar-Pressure ...)
- CTD
- Bathythermograph
- Current Meters
- Sea Bottom Samplers

# PERMENANT TIDAL STATIONS\_1

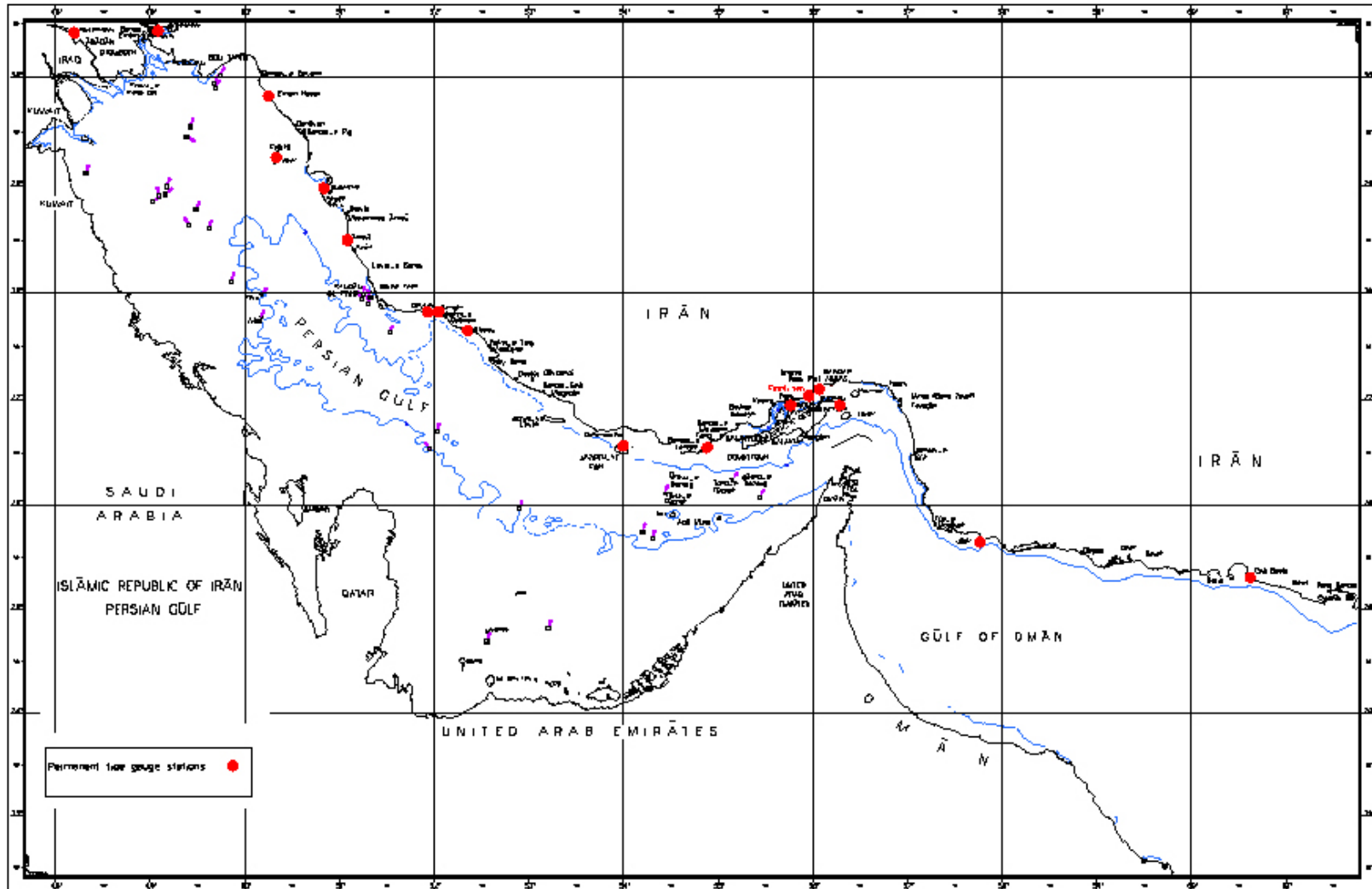
| No. | Name of Station    | Location     | Position |          | Date of established |
|-----|--------------------|--------------|----------|----------|---------------------|
|     |                    |              | Lat.     | Long.    |                     |
| 1   | Emam Hassan Port   | Persian Gulf | 29, 50 N | 050,17 E | 1991                |
| 2   | Bushehr            | Persian Gulf | 28, 59 N | 050,50 E | 1989                |
| 3   | Kangan             | Persian Gulf | 27, 50 N | 052,03 E | 1990                |
| 4   | Shahid Rajaei Port | Persian Gulf | 27, 06 N | 056,04 E | 1990                |
| 5   | Chabahar           | Oman sea     | 25, 17 N | 060,37 E | 1990                |
| 6   | Jask               | Oman sea     | 23, 39 N | 057,46 E | 1997                |
| 7   | Khorramshahr       | Persian Gulf | 30, 25 N | 048,12 E | 2001                |
| 8   | Emam Khomeini Port | Persian Gulf | 30, 26 N | 049,05 E | 2001                |
| 9   | Kharg Island       | Persian Gulf | 29, 16 N | 050,20 E | 2001                |



# PERMENANT TIDAL STATIONS\_2

| No. | Name of Station        | Location     | Position |          | Date of established |
|-----|------------------------|--------------|----------|----------|---------------------|
|     |                        |              | Lat.     | Long.    |                     |
| 10  | Dayyer                 | Persian Gulf | 27,50 N  | 051,56 E | 2010                |
| 11  | Kish Island            | Persian Gulf | 26,34 N  | 054,00 E | 2010                |
| 12  | Bandar_e Lengeh        | Persian Gulf | 26,33 N  | 054,53 E | 2010                |
| 13  | Persian Gulf Ship Yard | Persian Gulf | 27,02 N  | 055,57 E | 2012                |
| 14  | Bahman_Qeshm Island    | Persian Gulf | 26,57 N  | 056,17 E | 2012                |
| 15  | Ameri                  | Persian Gulf | 28,31 N  | 051,05 E | 2013                |
| 16  | Taheri                 | Persian Gulf | 27,39 N  | 052,21 E | 2013                |

# PERMENANT TIDAL STATIONS



# Collect data

## ■ Past(1989-2011)

- Full mechanical tied gauge – draw in paper → collect the graph → digit → analyze

## ■ Now (2011-2014)

- Replace old tide gauge with electronically tide gauge
- Self recorder → save them → analyze



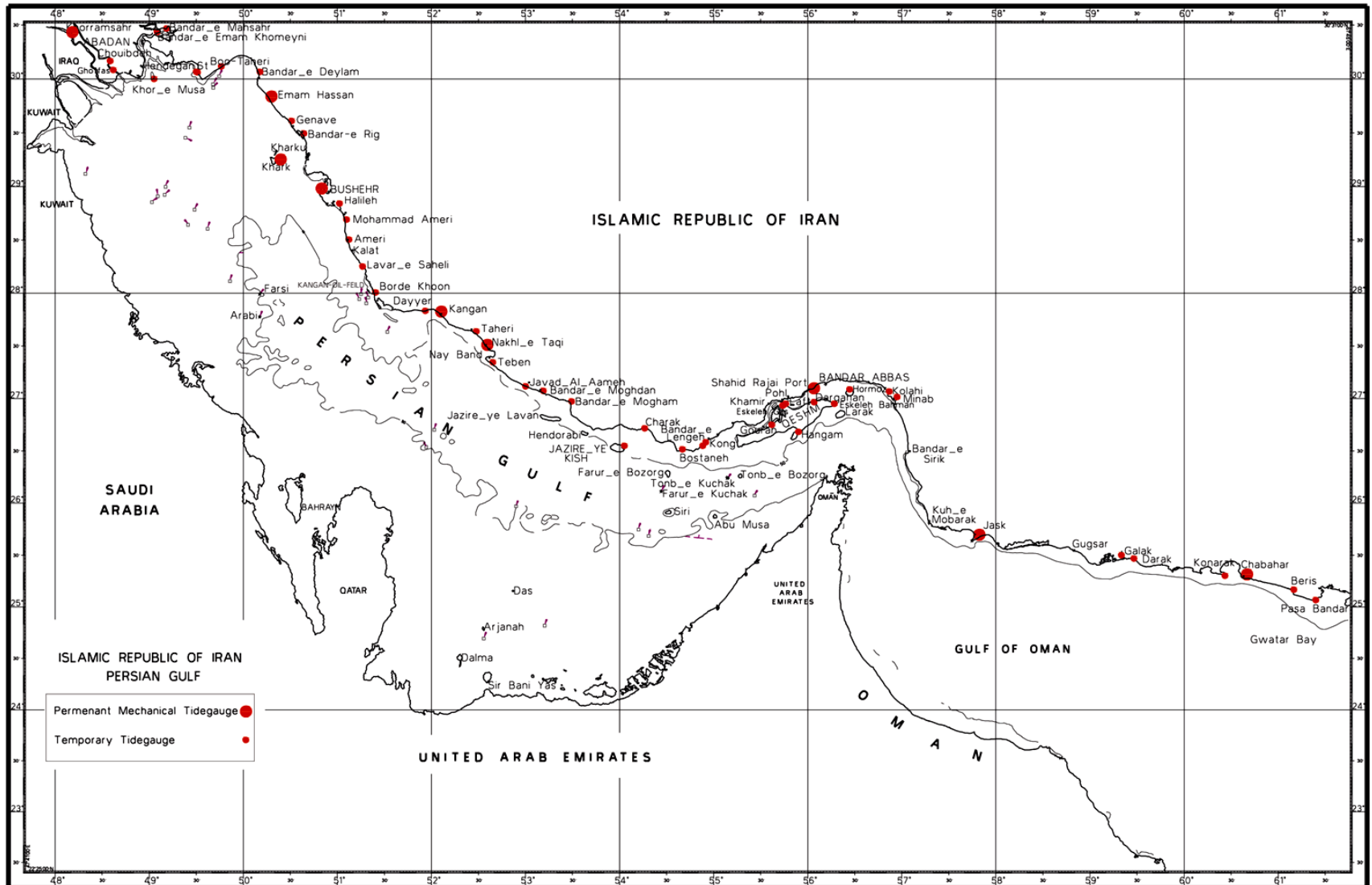
# TEMPORAL TIDAL STATIONS

More than

**50 temporal stations**

**One month to One year  
observation**

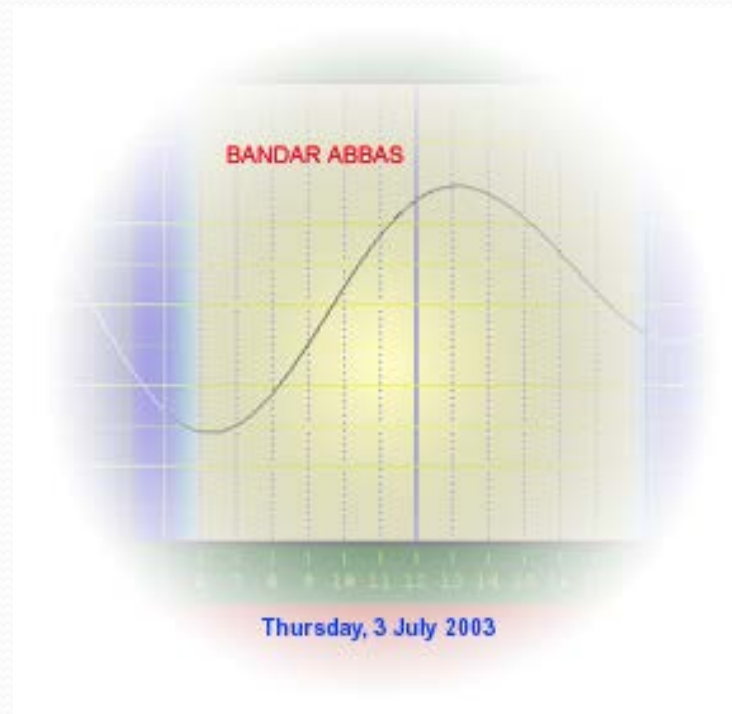
# TEMPORAL TIDAL STATIONS





# IRANIAN TIDE TABLES 2003

( PERSIAN GULF & OMAN SEA )





# **TIDE PREDICTION ON WEB**

**[www.iranhydrography.org](http://www.iranhydrography.org)**  
**[www.iranhydrography.ncc.org](http://www.iranhydrography.ncc.org)**



# Iranian Software for Tidal Prediction



# Tsunami Early Warning Stations

## Makran plate

- 2007: Chabahar Station
- 2009: Jask Station

# Jask



## SEA LEVEL STATION MONITORING FACILITY

[Intro](#)

[Map](#)

[Station lists](#)

[Station details](#)

[Services](#)

[\[previous station\]](#)

Station Jask

at GMT

[\[next station\]](#)

[\[more details\]](#)

[\[GTS message\]](#)

[\[show data\]](#)

[\[show on map\]](#)

[\[monitor\]](#)

**Station metadata**

Code jask  
Country Iran  
Location Jask  
Status Operational  
Local Contact Hydrographic Department of the National Cartographic Center ( Iran )  
Other Contact GeoForschungsZentrum ( Germany )  
Latitude 25.63  
Longitude 57.77  
Connection GTS message  
GTS message type SXXX32

**Sensor 1**

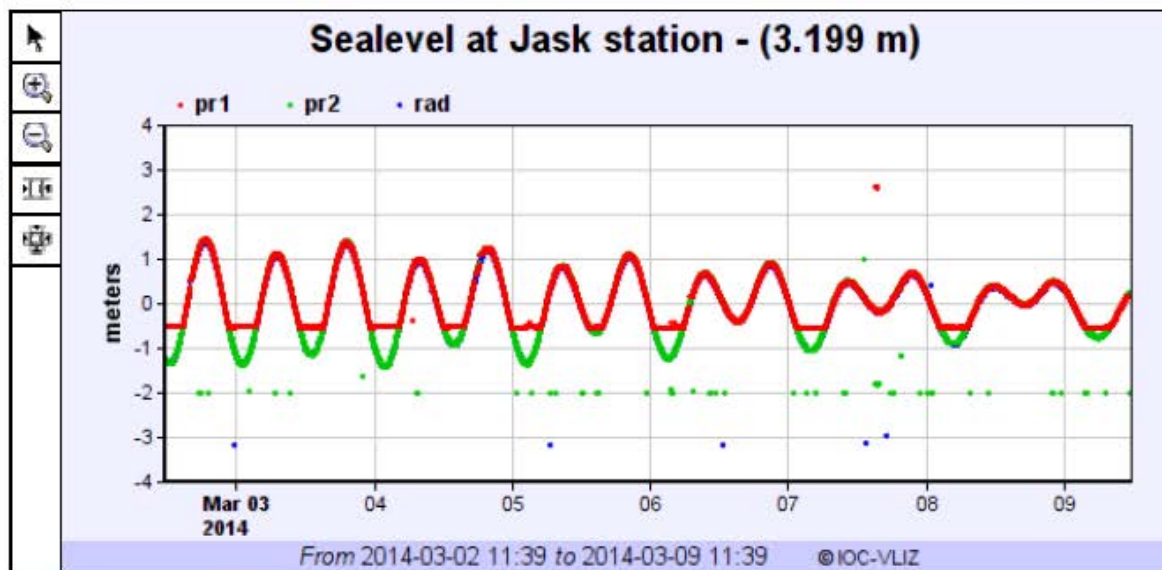
Type of sensor rad  
Sampling rate (min) 1

**Sensor 2**

Type of sensor pr1  
Sampling rate (min) 1

**Sensor 3**

Type of sensor pr2



Period  12h  day  7 days  30 days

Signals  rad  pr1  pr2  Remove outliers  Remove spikes

Data  Relative levels= signal - average over selected period  Absolute levels= as received  Offset signals= relative signals + offset  Show battery voltage

Tip: use left icons to zoom & scroll

# Jask

- Pressure tide gauge 1
- Pressure tide gauge 1
- Radar tide gauge
- DGPS
- Meteorological sensor

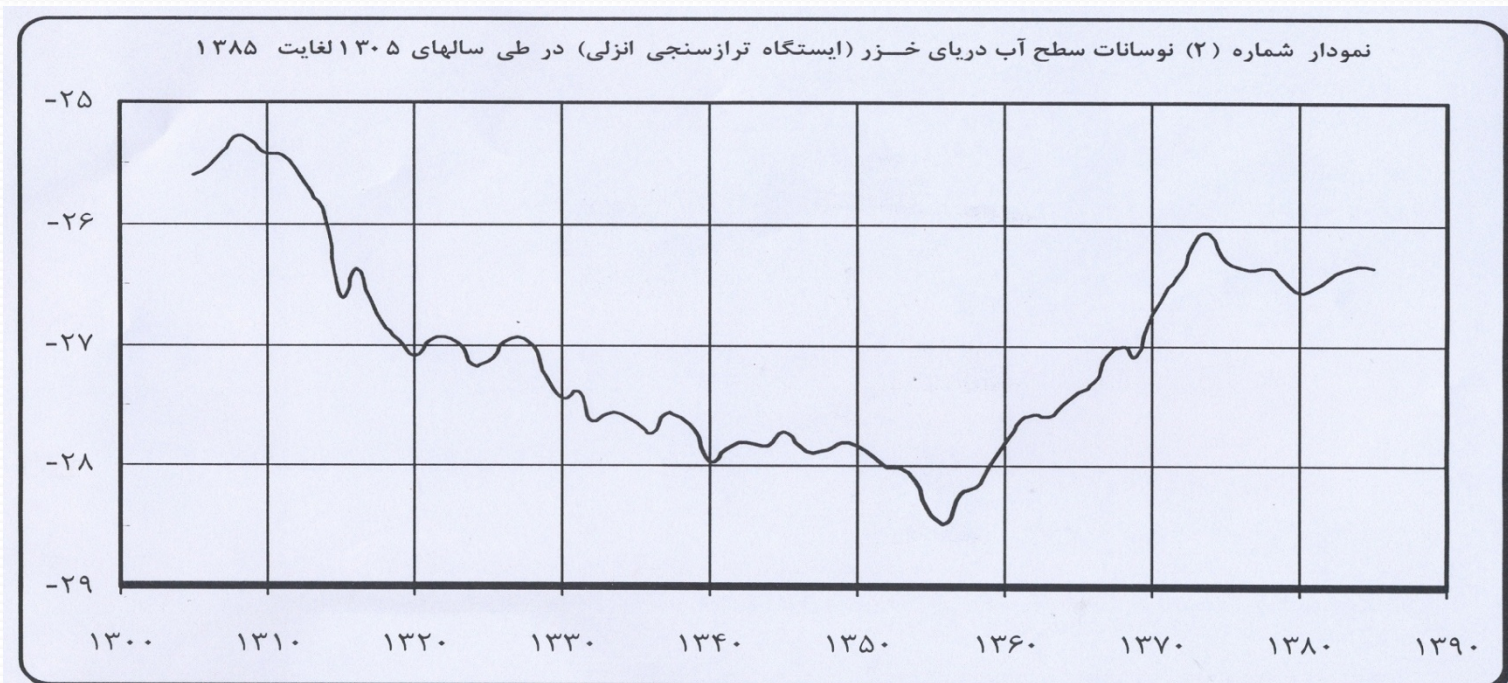
# Caspian see



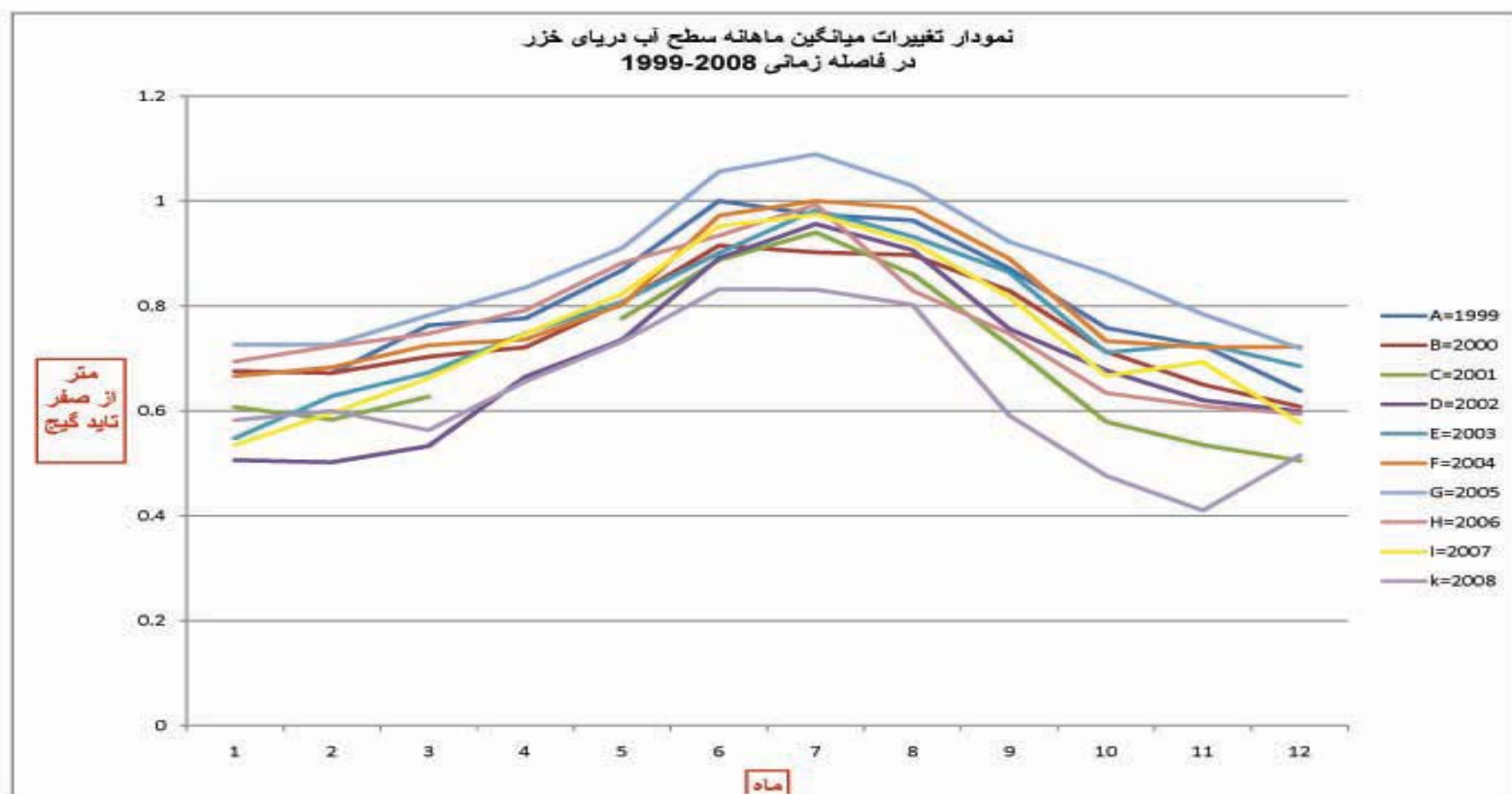
# Caspian see

- It is a biggest lake in the world
- The area is 37000 kilometers/m<sup>2</sup>
- Caspian see is non-tidal see
- Datum is -29m
- Tide rang 26cm

# See level graph(1926-2008)in anzaly port



# MSL CASPIAN SEE(1999-2008)





# NEKA STATION 1999-2008



# Caspian Sea Level Monitoring Network



# Caspian Sea Level Monitoring Network

| No. | Name of Station | Position                 | Date of established |
|-----|-----------------|--------------------------|---------------------|
| 1   | Astara          | 38 24' 22"N,48 52' 54"E  | 2012                |
| 2   | Anzali          | 37 28' 40"N,49 27' 43"E  | 2012                |
| 3   | Ramsar          | 36 57' 50"N,50 36' 11"E  | 2011                |
| 4   | Nowshahr        | 36 39' 31"N, 51 30' 17"E | 2012                |
| 5   | Fereydounkenar  | 36 41' 47"N,52 33' 16"E  | 2012                |
| 6   | Amir abad       | 36 50' 46"N, 53 16' 11"E | 1998                |
| 7   | Bandar Torkaman | 36 53' 56"N,54 02' 37"E  | 2012                |

# Iranian Ultrasonic Tide Gauge



# Iranian Ultrasonic Tide Gauge



**Thank You**

