I.R.IRAN NATIONAL REPORT for 24th session of Coordination committee of Hydrometeorology of Caspian sea (CASPCOM)

Tehran, Iran, 10-11 December 2019

مرکز علوم جوی و اقیانوسی
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I.R.IRAN NATIONAL REPORT for 24th session of Coordination committee of CASPCOM Tehran, Iran, 10-11December 2019

سازمان هواشناسی کشور
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

In this report we talk about

Describes the development of the Maritime Meteorological Network in Golestan province, and the results of a joint maritime curous with the National Institute of Oceanography off the coast of Gilan

The preparation of the operational plan of the Caspian Meteorological and Hydrological Coordination Committee is one of the important issues discussed at the current meeting

Offering marine meteorological services to coastal users based on user needs assessment is one of the Islamic Republic of Iran national activities (TAHAK), which includes seven phases and is in progress for the fisheries and marine tourism sector.

In this report we talk about

Numerical and provincial numerical prediction by Nested method on the southern coast of the Caspian Sea and its advantage over previous numerical prediction methods are described in the report.

Unification of the altitude zero to measure the fluctuations of the Caspian Sea water level, in particular the stations of the alignment of Iran with other countries, which reported activities in this area.

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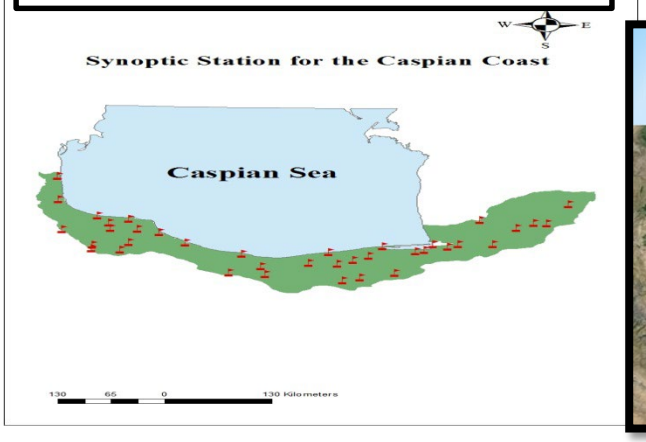
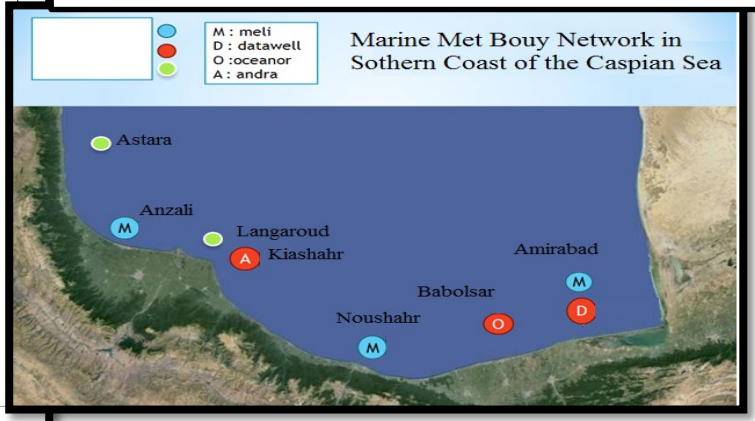
سازمان هواشناسی کشور
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

Development of measurement network in southern coasts of Caspian Sea

2-1- Coastal Marine Meteorological Network



2-2-Marine Meteorological Buoys



Starting Farid Pak marine meteorology station

Development of measurement network in southern coasts of Caspian Sea

Development of marine meteorology observation, Noor and Tonkabon, Mazandaran Province

Research cruise near Gilan Province

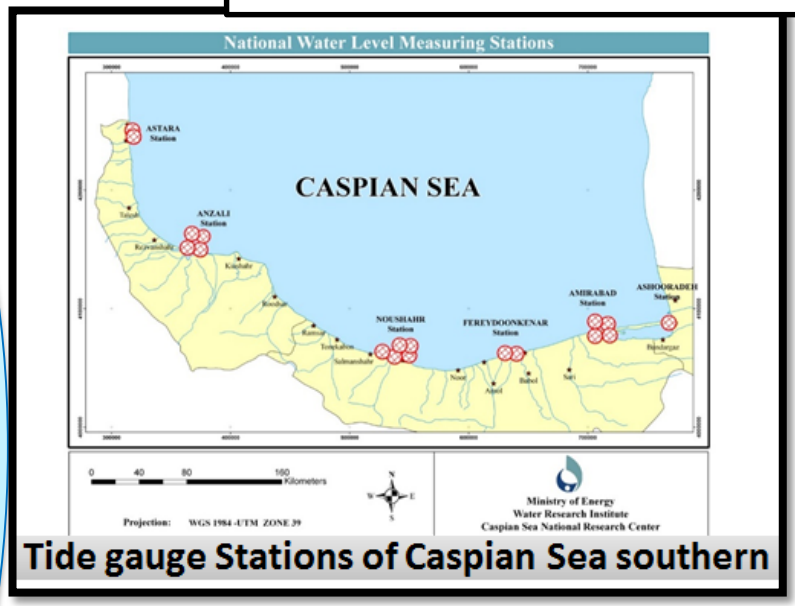
2-3- Meteorological Radar

Kiyashahr Meteorological Radar

Amir Abad Meteorological Radar

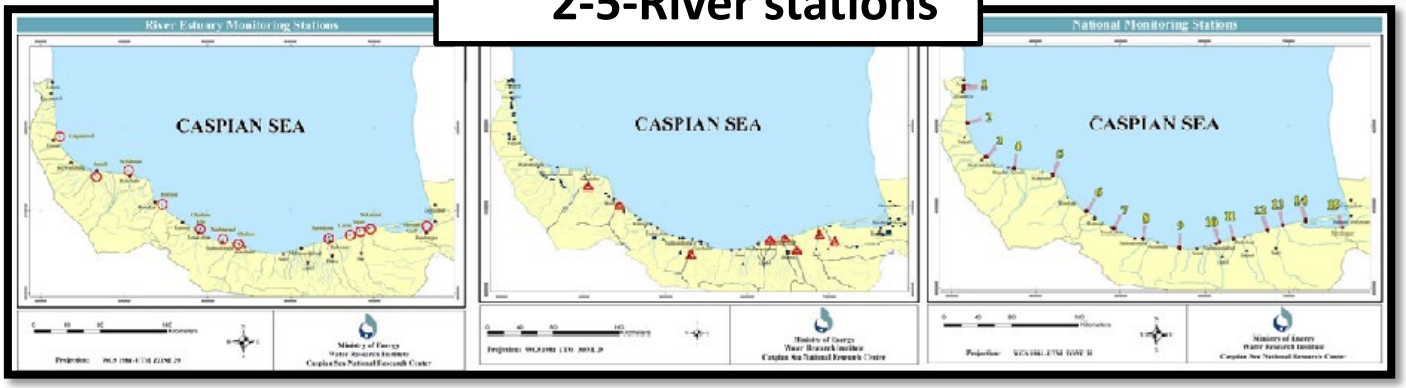
2-4- Caspian Sea Level monitoring network

Development of measurement network in southern coasts of Caspian Sea



Tide gauge Stations of Caspian Sea southern

2-5-River stations



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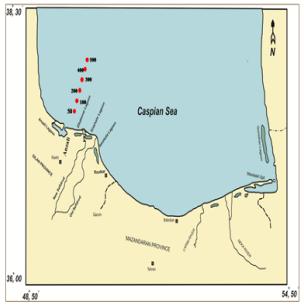
سازمان هواشناسی کشور
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

Study and research

Deep water studies in the southern Caspian Sea

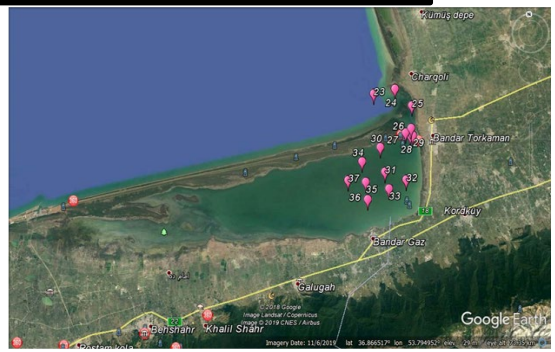
Biological studies
Phytoplankton
Zooplankton
Benthos
Chemical studies
Nutrients
Alkalinity
TOC
DO, pH and Chl-a
Geological studies
Sedimentology
Physical studies
Physical Parameters



Instrument: CTD- Plankton net- Grab- Niskin- Gravity Corer- Rosette

Monitoring of environmental parameters in Gorgan Bay

Biological studies
Phytoplankton
Zooplankton
Benthos
Nekton
Chemical studies
Nutrient
Alkalinity
TOC
BOD and COD
Chemical parameters
Geological studies
Grain size
Physical studies
Current
Physical parameters



Instrument: - RCM9- CTD- Hach portable probes- Plankton net- Grab- Niskin

Physical studies
Current
Temperature
Salinity
Chemical and Geological studies
Sediment and water samples

Instrument: - RCM9- CTD- Hach probes- Grab- Niskin

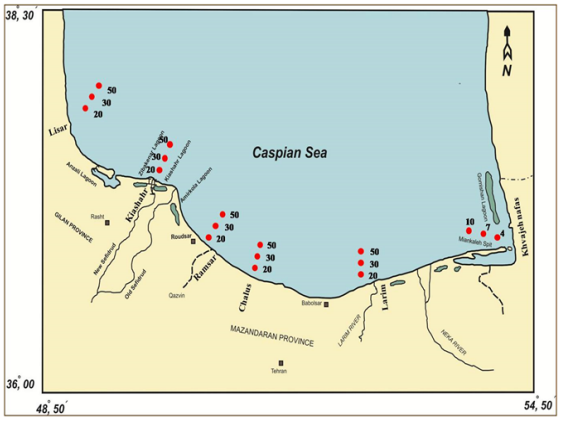
Monitoring of environmental parameters in Anzali Wetland

Biological studies
Phytoplankton
Zooplankton
Benthos
Nekton
Biological fouling

Chemical studies
Nutrient
Alkalinity
TOC
Sulfide, TN, TP, BOD and COD
Chemical parameters

Geological studies
Grain size
TOM and TOC in sediment
Sedimentation rate

Physical studies
Wave
Current
Physical parameters



Instrument: ADCP- RCM9- CTD-Sediment trap- Plankton net- Grab- Niskin

Near-shore Monitoring in the southern Caspian sea

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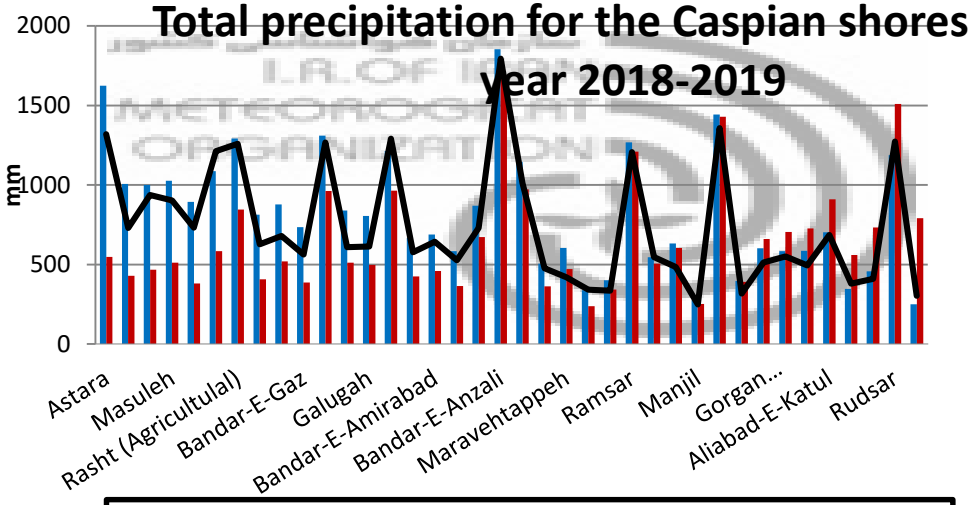
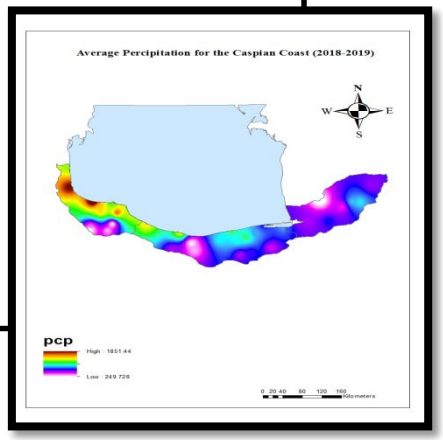
سازمان هواشناسی کشور
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

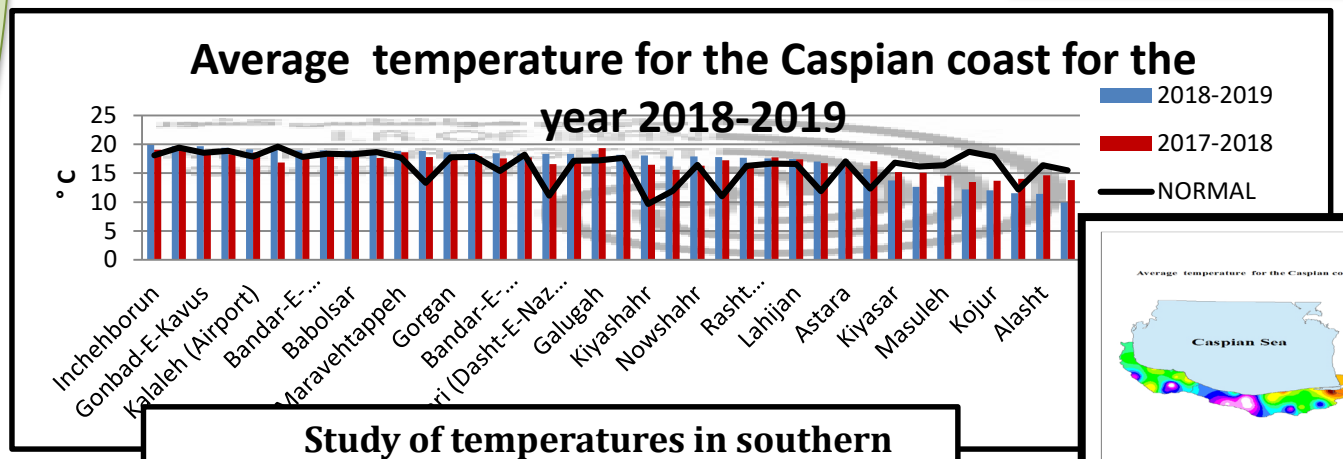
Study and research

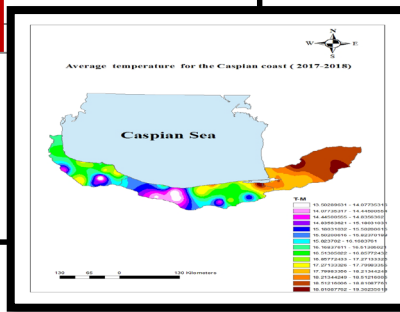
Climate report of Caspian South Coastal 2018-2019





Study of precipitation in southern coasts of Caspian Sea





Study of temperatures in southern coasts of Caspian Sea

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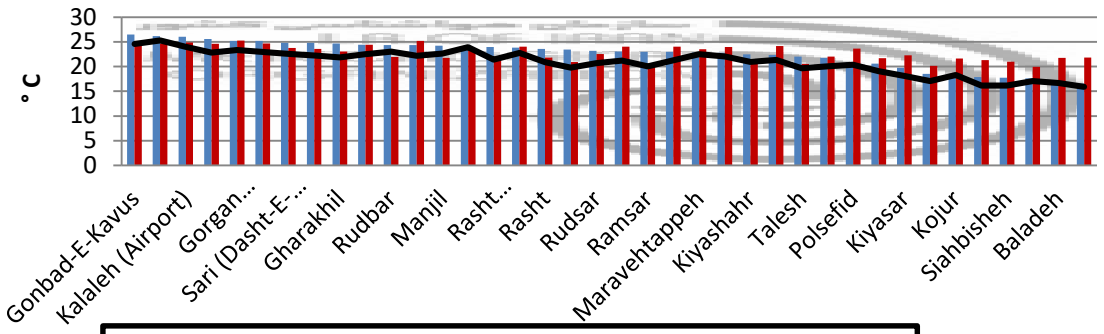
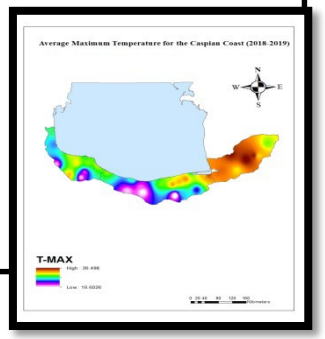
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

Study and research

Climate report of Caspian South Coastal 2018-2019

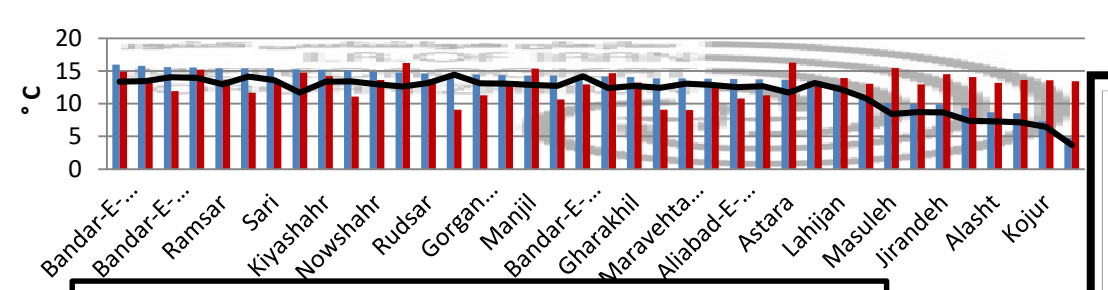
Average maximum temperature for the Caspian coast for the year 2018-2019

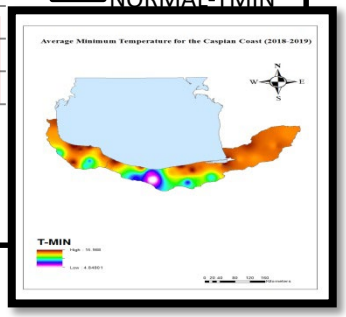




Study of temperatures in southern coasts of Caspian Sea

Minimum average temperature for the Caspian Sea southern coasts 2018-2019





Study of temperatures in southern coasts of Caspian Sea

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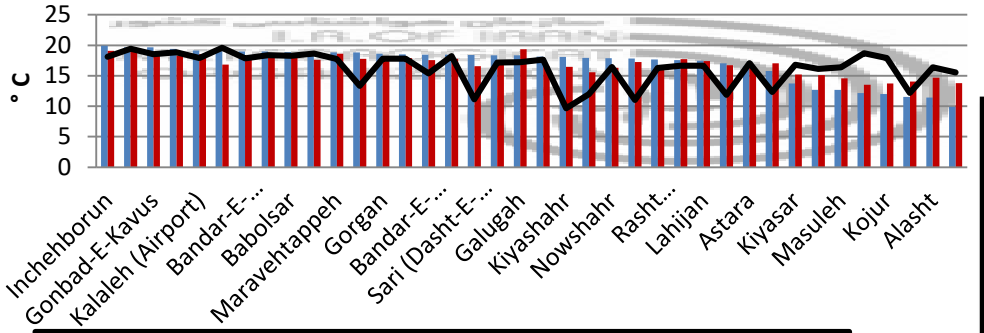
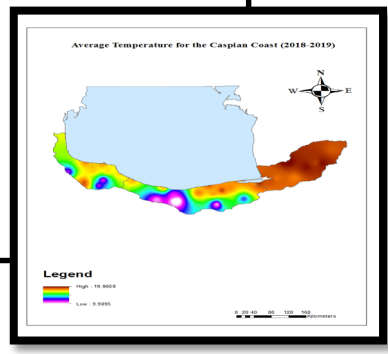
Study and research

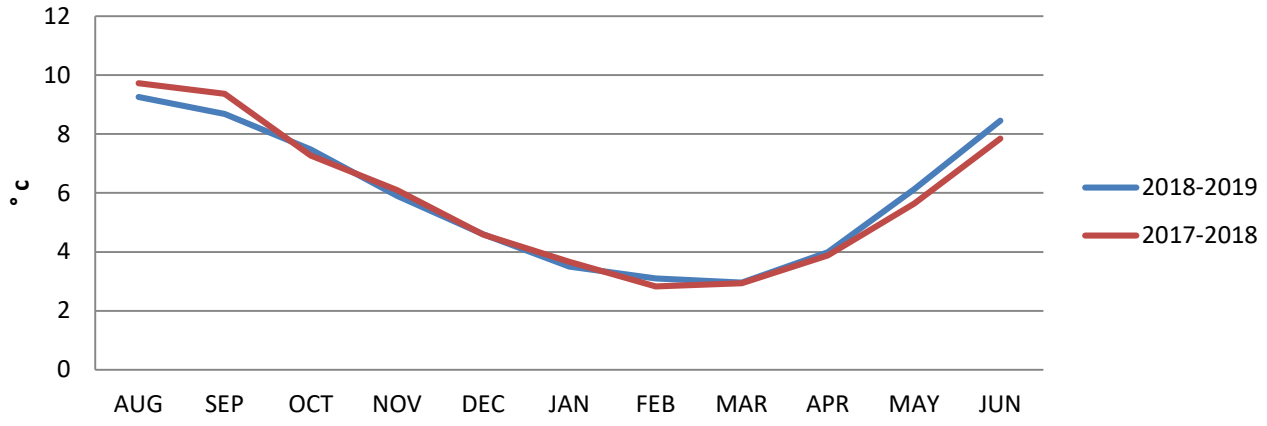
Climate report of Caspian South Coastal 2018-2019

Average temperature for the Caspian coast for the year 2018-2019





Study of temperatures in southern coasts of Caspian Sea



Comparison of Caspian Sea Surface Temperature Trends over Years 2017-2018 ,2018-2019

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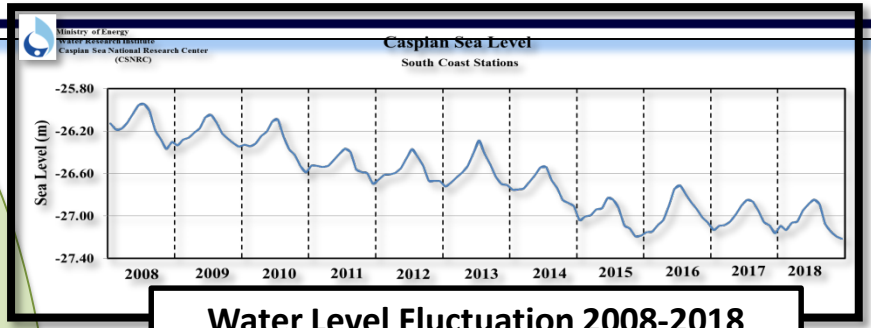
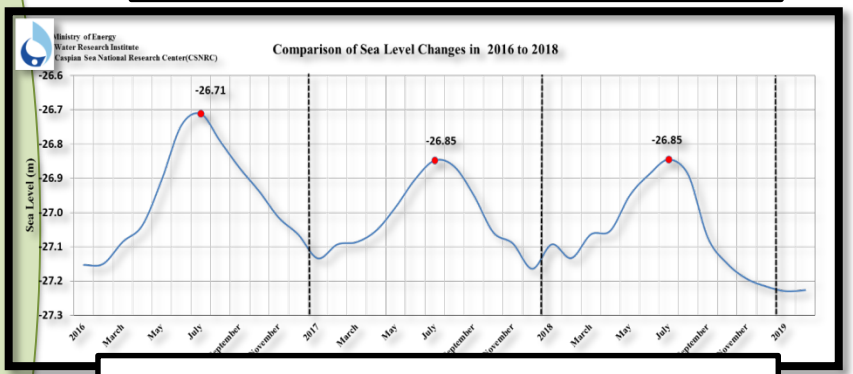
سازمان هواشناسی کشور
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

Study and research

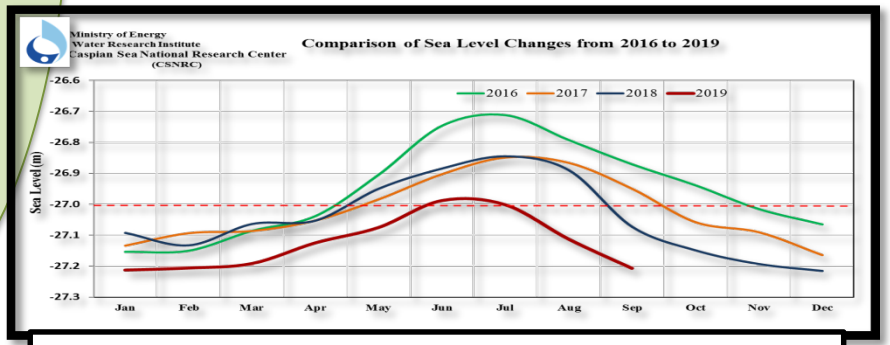
Report of Caspian Sea Level fluctuations



Water Level Fluctuation 2008-2018



Water Level Fluctuation 2008-2018



Comparison of monthly water level Fluctuation in the winter between 2016- 2019

Year	Sea level (m)	Sea level change rate Increase (+) Decrease (-) (cm/y)	Mean sea level change (per month)	Maximum sea level decrease & increase (month)
2008	-26.14	-13	6	September
2009	-26.22	-8	5	June & September
2010	-26.32	-10	5	August
2011	-26.52	-20	6	September
2012	-26.57	-5	6	October
2013	-26.57	0	6	June to October
2014	-26.72	-15	5	August
2015	-27.01	-29	6	September
2016	-26.96	+5	7	May & June
2017	-27.02	-6	5	October
2018	-27.05	-3	6	September

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I. R. OF IRAN METEOROLOGICAL ORGANIZATION

Study and research

Climate report of Caspian South Coastal
&
Publication

Publication

Siamak Jamshidi: (2019): Impact of Physical Properties on Distribution of Active Reaction in the Coastal and C
the Southern Caspian Basin, International Journal of Costal & Offshore Engineering, Vol.3,No. 2, p 31-39.

Siamak Jamshidi: (2019): Impact of Physical and Dynamical Aspects on the Coastal Conditions Environmental Health and Marine Litter Distribution, Conference Proceedings, Istanbul Turkey .

Siamak Jamshidi: (2019):Summary Results of the Oceanographic Cruise in the Southern Boundary of the Caspian Sea, XXIII International Scientific conference (School) on marine geology, Moscow, Russia.

Hamid A.K. Lahijania, Abdolmajid Naderi Benia, Alina Tudrynb, Mona Hosseindousta, Parisa Habibia,Majid Pourkermana, (2019), Unraveling extreme events from deep water cores of the south Caspian Sea, Quaternary International.

Lahijani, H.A.K., Naderi, A.(2019) South Caspian Deep Sedimentation during Late Pleistocene and Holocene, XXIII International Scientific conference (School) on marine geology, Moscow, Russia.

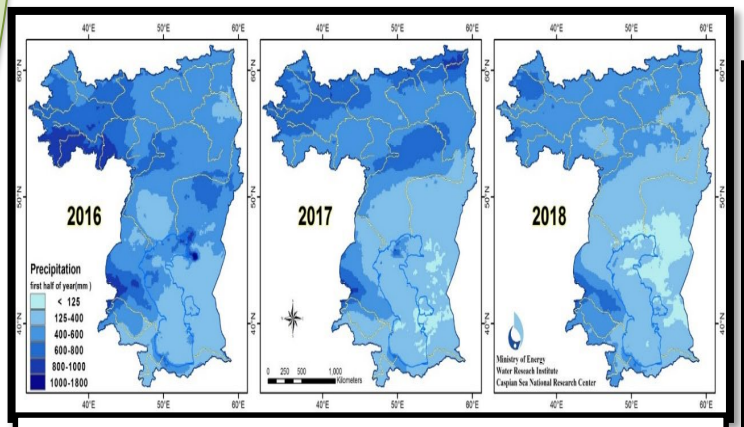
S.A.G. Leroy, A. Amini, M.W. Gregg, E. Marinova, R. Bendrey, Y. Zha, **A. Naderi Beni** g, H. Fazeli Nashli h , Human responses to environmental change on the southern coastalplain of the Caspian Sea during the Mesolithic and Neolithic periods, Quaternary Science Reviews, Vol 218, p 343-364.

Jafar Azizpour (2019): effect of flood on physical oceanographic parameters in the Gorgan Bay, 7th comprehensive conference on Flood, 2019, Tehran, Iran.

Hossein Bagheri, Abdolmajid Naderi Beni. Kazem Darvish Bastami., (2019). Reconstruction of Sea level changes using magnetic susceptibility variations in southeastern of the Caspian Sea. Journal of oceanography. 10 (37) :11-21

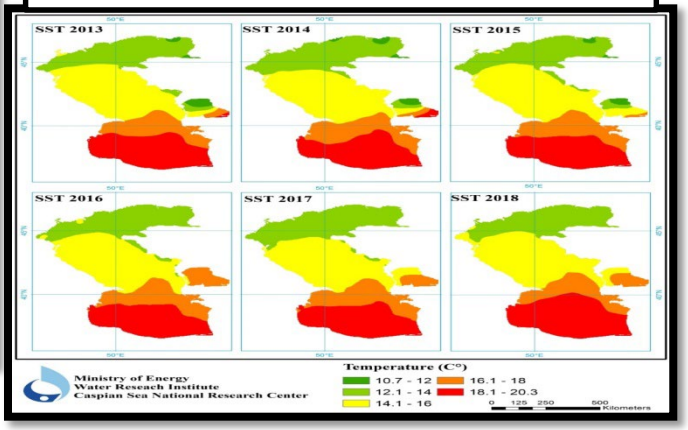
Hossein Bagheri, Mohamad Hossein Mahmodi Gharaei, Reza Mousavi Harami, Mohammad Khanebad.2019.Trace metal environmental contamination records in core sediments of Gorgan Bay in southeast of Caspian Sea, journal of applied ecology (under publication).

Reza Rahnama, Ali Hamzehpour. Study on Quality and Abundance of Zooplankton in Surface Offshore Waters of Southern part of Caspian Sea. 2019. Aquaculture studies. Accepted.



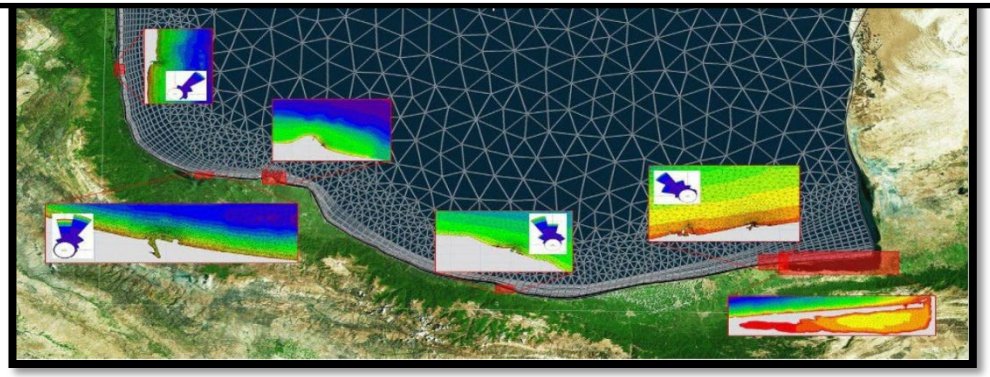
Annual precipitation in Caspian Sea basin, 2016-2018

Annual mean SST of Caspian Sea, 2013-2016

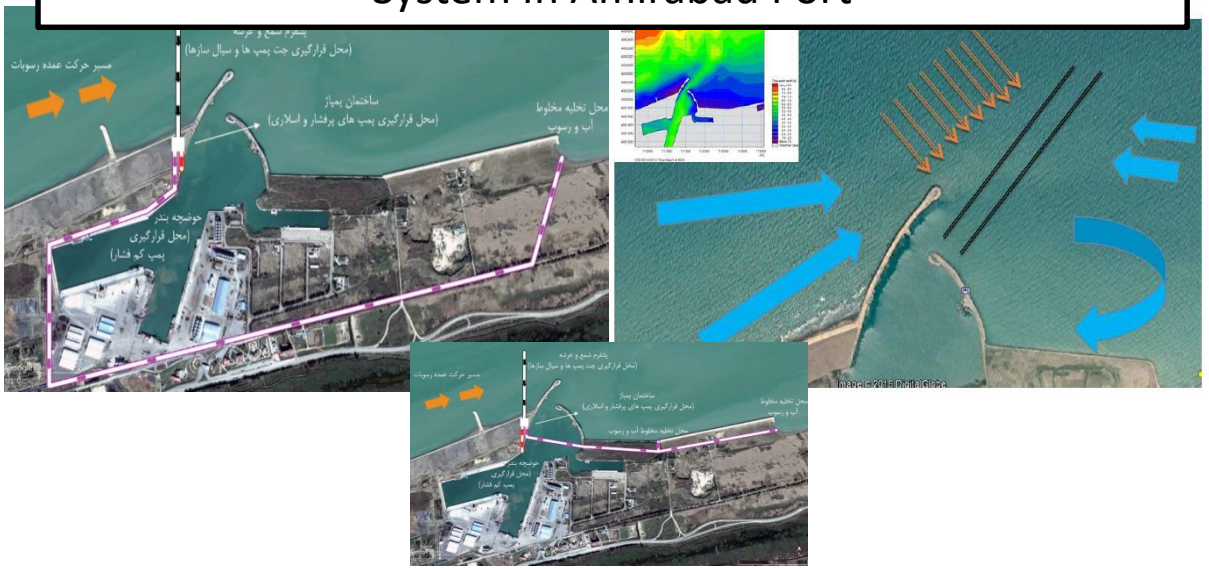


Study and research

Monitoring and Modeling study (Southern Coasts of Caspian Sea)



Providing Guidance and Design Of The Sand Bypassing System In Amirabad Port



Uniform Altitude Zero Align at the stations of the Caspian Sea

STATION	CORRECTION (meter)
Aastara	-1.136
Anzali	-1.055
Raamsar	-1.000
Nowshahr	-0.976
Fereydoonkenar	-0.955
Amirabaad	-0.971
Torkman	-0.997

Marine prediction
Marine TAHAK
and
aims of its institution

In order to implement the Applied Meteorological Development Plan (Tahak) in the seaplane section, seven steps are considered below:

1. Identify the end users of the Marine Tahak (including the list of individuals and groups of applications)
2. Requirements for marine users, such as completing the need-assessment form (design by total chart) and resource-based identification
3. Production of marine data and product
4. Ways to communicate with end users
5. Capacity building
6. Survey based on the feedback form designed by the General Directorate
7. Documentation and Value Added

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سازمان هواشناسی کشور
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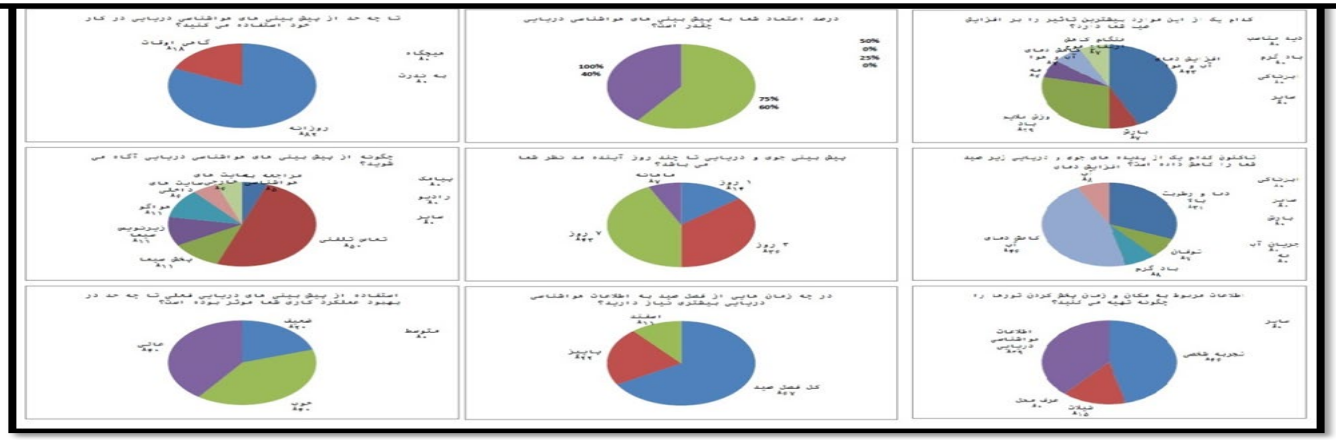
Marine prediction
Marine TAHAK
and
aims of its institution

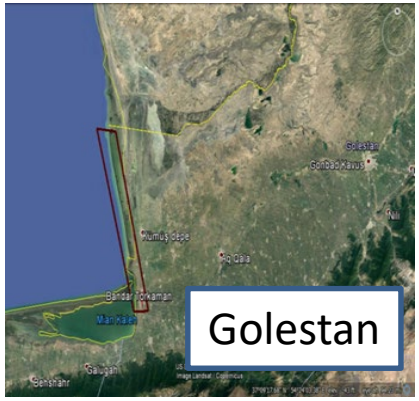
Sample of proceeding form of marine "TAHAK" for capacity building and needs assessment

In session held at 97/09/07 at RADAR station of Amirabad port



Marine prediction
Marine TAHAK and aims of its institution

Marine metrological advises for :
groups of fishers, tourists, and port and navigation
are producing which mostly contains:
wind direction and speed, forecast of weather and wave height
according to users needs.
Daily issue of SMS containing
two day forecast of weather and wind direction and speed and wave height
being done.
In this direction, a forecasting format is planned in which all coasts of the country has been divided into seven part for seven coastal provinces



locations of southern Caspian Sea provinces ports

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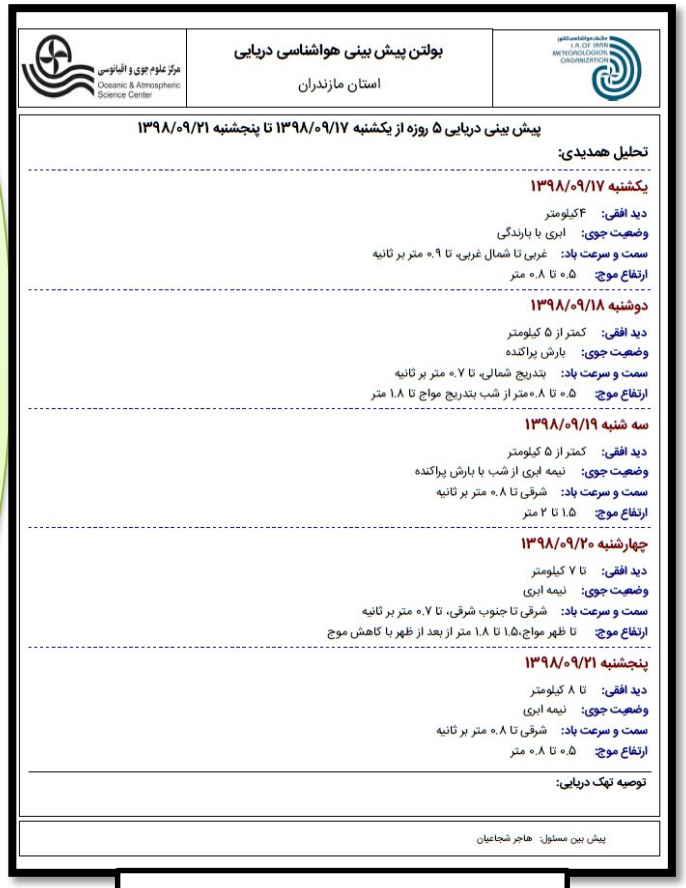
Marine prediction
Marine TAHAK
and
aims of its institution

for each preparing of 12hr marine forecast, 96hr marine forecast and 96hr marine forecast are made



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Oceanic & Atmospheric Science Center

بولتن پیش بینی هواشناسی دریایی

استان مازندران

پیش بینی دریایی ۵ روزه از یکشنبه ۱۳۹۸/۰۹/۱۷ تا پنجشنبه ۱۳۹۸/۰۹/۲۱

تحلیل همدیدی:

یکشنبه ۱۳۹۸/۰۹/۱۷

دید افقی: ۴کیلومتر
وضعیت جوی: ابری با بارندگی
سمت و سرعت باد: غربی تا شمال غربی، تا ۰.۹ متر بر ثانیه
ارتفاع موج: ۰.۵ تا ۰.۸ متر

دوشنبه ۱۳۹۸/۰۹/۱۸

دید افقی: کمتر از ۵ کیلومتر
وضعیت جوی: بارش پراکنده
سمت و سرعت باد: بتدریج شمالی، تا ۰.۷ متر بر ثانیه
ارتفاع موج: ۰.۵ تا ۰.۸متر از شب بتدریج مواج تا ۱.۸ متر

سه شنبه ۱۳۹۸/۰۹/۱۹

دید افقی: کمتر از ۵ کیلومتر
وضعیت جوی: نیمه ابری از شب با بارش پراکنده
سمت و سرعت باد: شرقی تا ۰.۸ متر بر ثانیه
ارتفاع موج: ۱.۵ تا ۲ متر

چهارشنبه ۱۳۹۸/۰۹/۲۰

دید افقی: تا ۷ کیلومتر
وضعیت جوی: نیمه ابری
سمت و سرعت باد: شرقی تا جنوب شرقی، تا ۰.۷ متر بر ثانیه
ارتفاع موج: تا ظهر مواج،۱.۵ تا ۱.۸ متر از بعد از ظهر با کاهش موج

پنجشنبه ۱۳۹۸/۰۹/۲۱

دید افقی: تا ۸ کیلومتر
وضعیت جوی: نیمه ابری
سمت و سرعت باد: شرقی تا ۰.۸ متر بر ثانیه
ارتفاع موج: ۰.۵ تا ۰.۸ متر

توصیه تهک دریایی:

پیش بین مسئول: هاجر شجاعیان

96hr marine forecast

مرکز علوم جوی و اقیانوسی
Oceanic & Atmospheric Science Center

بولتن پیش بینی هواشناسی دریایی

استان گیلان

پیش بینی ۱۲ ساعته دریایی از ساعت ۰۸ روز یکشنبه ۱۳۹۸/۰۹/۱۷ تا ساعت ۲۰ روز یکشنبه ۱۳۹۸/۰۹/۱۷

تحلیل همدیدی:

آستارا	منطقه ساحلی	منطقه دور از ساحل
دید افقی	در بعضی نقاط ضعیف	در بعضی نقاط ضعیف
وضعیت جوی	ابری گاهی با بارندگی اواخروقت در برخی نقاط کاهش ابر	ابری گاهی با بارندگی اواخروقت در برخی نقاط کاهش ابر
سمت و سرعت باد	شمالی/ شمال غربی ۸ متربرثانیه	شمال غربی ۱۱ متربرثانیه
ارتفاع موج	۱.۲ متر	۲.۵ متر
دمای آب	۱۳ درجه سلسیوس	۱۳ درجه سلسیوس
جزر و مد		
آینده نگری	وجود ناپایداری	وجود ناپایداری

انزلی	منطقه ساحلی	منطقه دور از ساحل
دید افقی	در بعضی نقاط ضعیف	در بعضی نقاط ضعیف
وضعیت جوی	ابری گاهی با بارندگی اواخروقت در برخی نقاط کاهش ابر	ابری گاهی با بارندگی اواخروقت در برخی نقاط کاهش ابر
سمت و سرعت باد	شمال غربی/ غربی ۹ متربرثانیه	شمال شرقی ۱۲ متربرثانیه
ارتفاع موج	۱.۲ متر	۲.۵ متر
دمای آب	۱۴ درجه سلسیوس	۱۴ درجه سلسیوس
جزر و مد		
آینده نگری	وجود ناپایداری	وجود ناپایداری

رودسر	منطقه ساحلی	منطقه دور از ساحل
دید افقی	در بعضی نقاط ضعیف	در بعضی نقاط ضعیف
وضعیت جوی	ابری گاهی با بارندگی اواخروقت در برخی نقاط کاهش ابر	ابری گاهی با بارندگی اواخروقت در برخی نقاط کاهش ابر
سمت و سرعت باد	غربی/ شمال غربی ۹ متربرثانیه	شمال غربی ۱۲ متربرثانیه
ارتفاع موج	۱ متر	۲ متر
دمای آب	۱۴ درجه سلسیوس	۱۴ درجه سلسیوس
جزر و مد		
آینده نگری	وجود ناپایداری	وجود ناپایداری

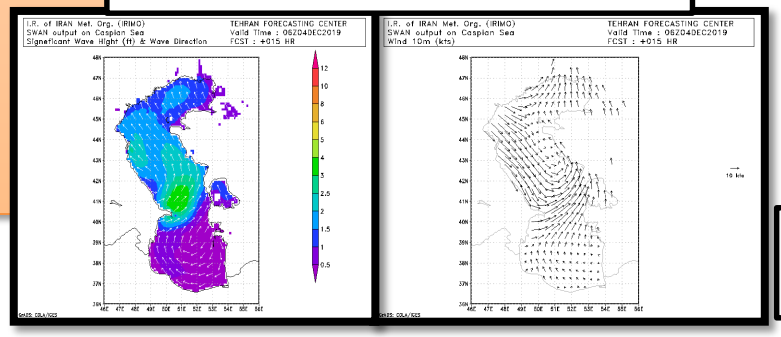
پیش بین مسئول: هاجر شجاعیان

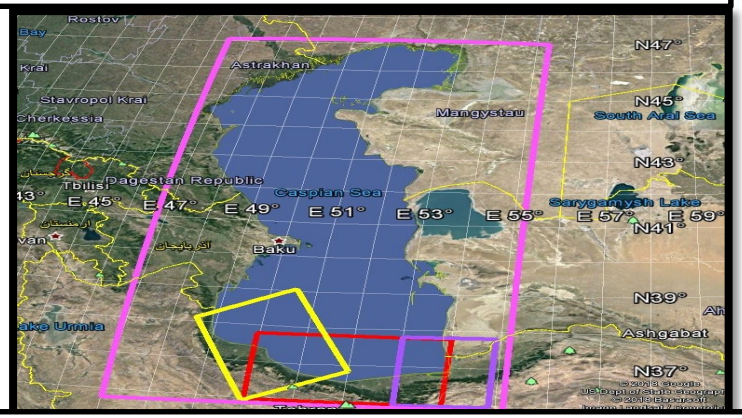
12hr marine forecast

Swan model output for considerable wave in CASPIAN SEA

wind waves are most observed waves at sea, and have most effect on human actions at sea area. Coastal cities like Amirabad port and Kiashahr because of fishery, navigation, coastal managing, port management, and marine trading, increasingly need wave forecast. Swan wave model used for calculation of irregular waves at coastal regions based on deep water waves, win, bed topography, currents and tides (deep and shallow water). Nested idea in SWAN wave model is calculation of waves on a coarse net on a bigger area, then calculation on finer mesh on limited area.

SWAN maps on Caspian Sea





domain of Caspian Sea model and southern coastal provinces

I.R.IRAN NATIONAL REPORT for 24th session of Coordination committee of CASPCOM Tehran, Iran, 10-11December 2019

مرکزعلوم جوی واقیانوسی
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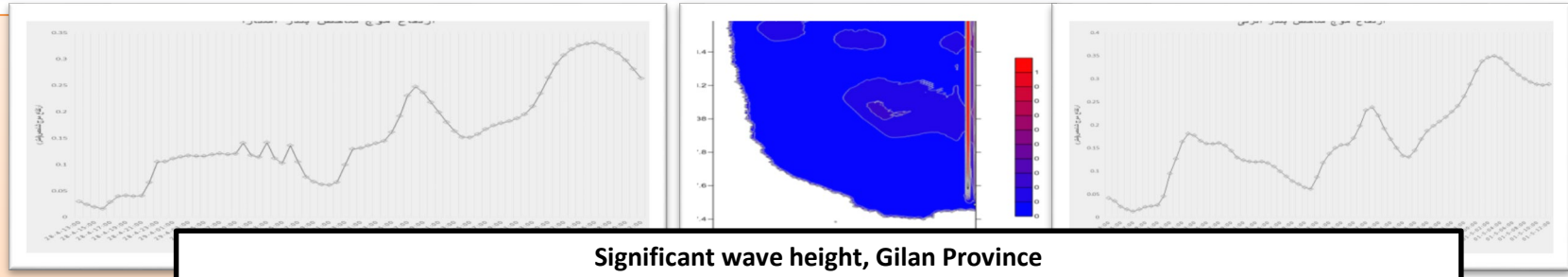
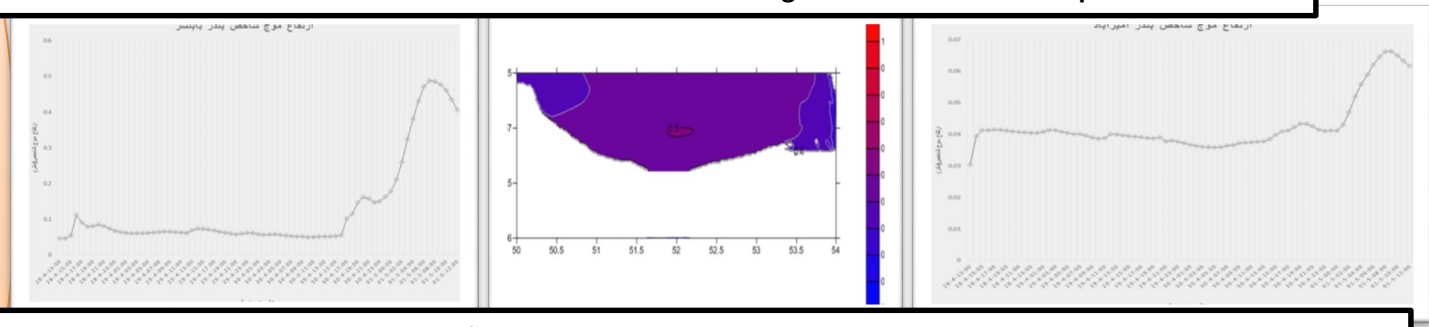
سازمان هواشناسی کشور
I. R. OF IRAN METEOROLOGICAL ORGANIZATION

Swan model output for considerable wave in CASPIAN SEA



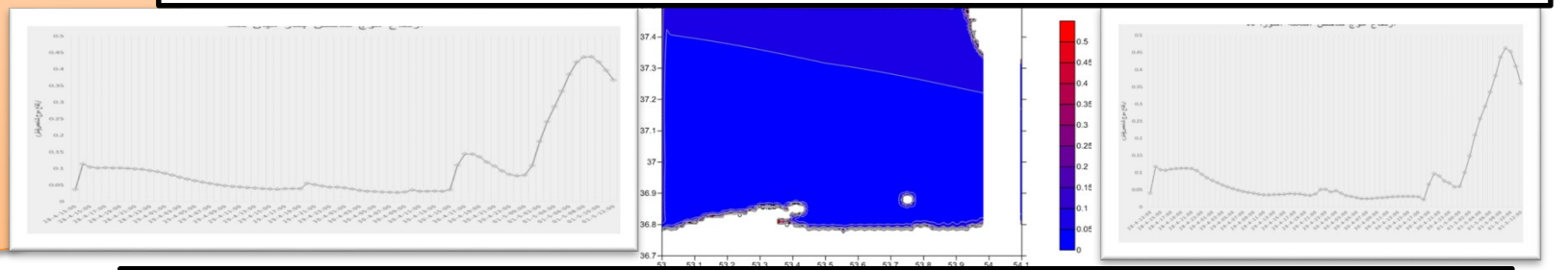
Significant wave height, Gilan Province

time series of 72hr forecast for considerable wave height of Anzali and Astara ports



Significant wave height, Mazandaran Province

time series of 72hr forecast for considerable wave height of babolsar and Amirabad ports



Significant wave height, Golestan Province

time series of 72hr forecast for considerable wave height of Mian Ghale and Ashuradeh

I.R.IRAN NATIONAL REPORT for 24th session of Coordination committee of CASPCOM
Tehran, Iran, 10-11December 2019

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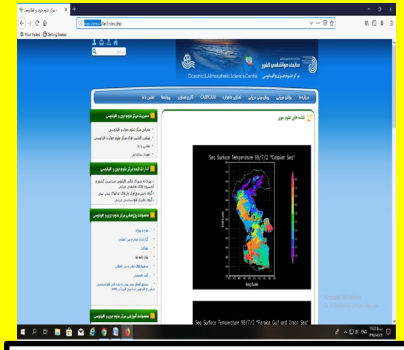
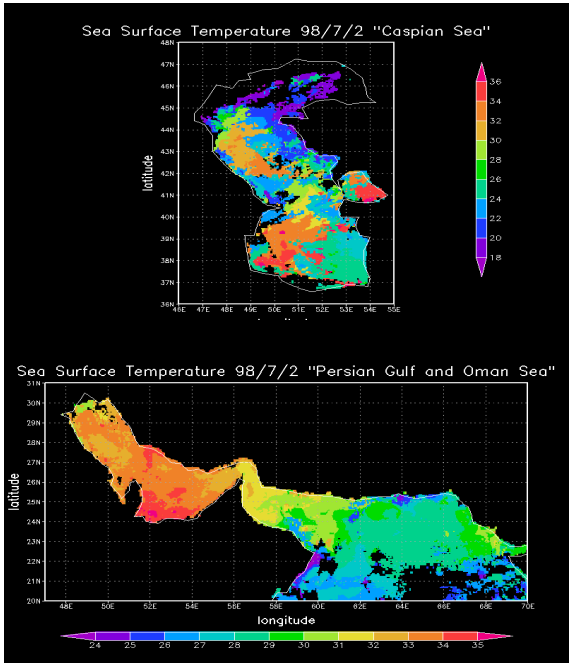
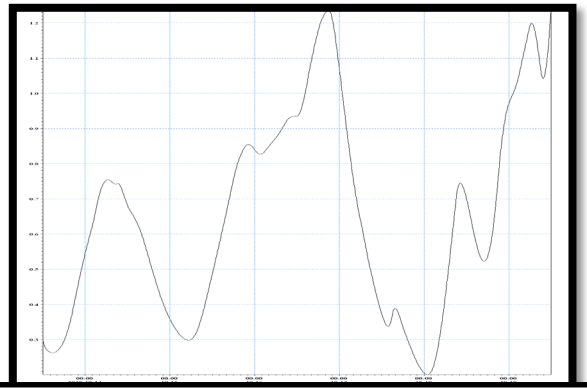
Web site



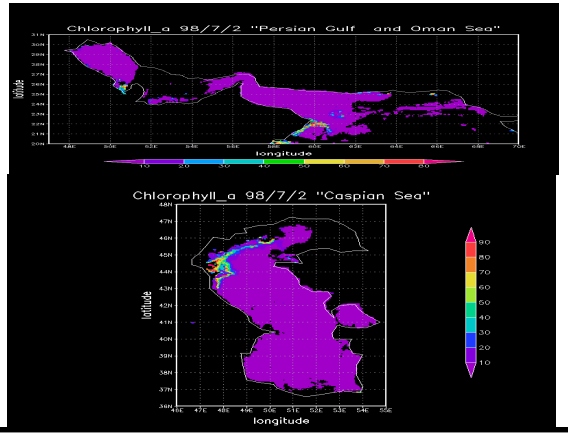
http://oasc.irimo.ir

Caspian sea ,persian golf and oman sea
Sea surface temperature





Mike 21 point forecast, significan wave height



Caspian sea ,persian golf and oman sea Chloraphyll-a

Events

Ceremony of National Caspian Sea day, Golestan Province, 12 August

Professional Meeting on the Occasion of the Caspian Sea Day – August 10, 2019- Golestan Province

Gulf of Gorgan : Challenges with the Caspian Sea Level Oscillations, Climate Change and Human Activities-September 14, 2019- Gorgan-Golestan Province

Events

Third Plenary Conference and Field Trip of Ponto-Caspian Stratigraphy and Geochronology (POCAS), 11-18 Oct. 2019- Tehran and Guilan Province

22nd General Assembly of the Association of the State Universities of the Caspian Region Countries, 1-2 Oct 2019, at the University of Guilan

Action Plan

1. Development and promotion of required stations for fixed observation networks 2020-2022 — 10 national Fixed Stations
2. Development of marine buoys network 2020-2022 — 5 Buoy
3. Development and promotion of required stations for mobile network monitoring 2020-2022 — 4national observation ships

Action Plan

4	Development and enhancement Marine Meteorological Forecast for the Caspian Sea (Bulletin and Map) 2020-2022	1 nationale nhanced marine forecast system
5	Development and enhancement the common data bank Marine Meteorological 2020-2022	1 national data bank
6	Development and enhancement of the platform for the exchange of ma meteorological information between the Caspian littoral states 200-2022	1 national enhanced data exchange system

Action Plan

7

Researches
2020-2023

6
Researches

1. Development and set up a system for long-term and medium-term measurements to modernize observation networks to determine the hydrological characteristic
2. Meteorological measurements in the Caspian region, by comparing the methods used to measure atmospheric rainfall and evapotranspiration of sea surface
3. Follow up the long-term observing ship in the standard and official sections of the Caspian Sea
4. Completion of aerology observation networks in the Caspian Sea
5. Formation of an automated system for collecting, processing and distributing information in order to calculate and predict the Caspian Sea's environment and its pollution, including natural phenomena forecast and dangerous in hydro meteorology and the harmful effects of technological processes and phenomena (Storms, unexpected floods, oil spills, etc)
6. Identify regional needs for training education, and the transfer of information and experiences

Action Plan

8

training courses
2020-2023

7 courses

1. courses on coordinated regional observation in the Caspian Sea
2. Courses on Atmosphere-Ocean Coupled Modeling
3. courses designed to collect, process and store region information
4. Satellite meteorology courses
5. Introduction to Marine Meteorological Data and Data Quality Control Software courses
6. atmosphere and Ocean Numerical Modeling Training courses
7. courses on telecommunication and satellite platforms


Thankyou