

# IRQUA2021

## 2<sup>nd</sup> International Conference on Quaternary Sciences Iran, Gorgan 2021

### First Circular

It is a great pleasure to invite you to the  
2<sup>nd</sup> International Conference on Quaternary Science  
Gorgan, Iran October 10-15<sup>th</sup>, 2021

Conference (2 days) Excursion (4 days)

### Organizers



## **Call for abstracts**

Quaternary: Climate change, Sedimentology, Magmatism, Tectonics, Geomorphology, Evolution of fauna and flora, Archaeology, Natural and mineral resources, Applied and engineering sciences and Quaternary perspectives

## **About Gorgan**

Gorgan is the capital of Golestan Province, northeast Iran. It lies approximately 400 km to the northeast of Tehran, some 30 km away from the Caspian Sea. The average annual temperature is 17.7°C and the annual rainfall is 600 mm.

## **Venue**

The Conference will be held at Gorgan University of Agriculture Sciences and Natural Resources in Pardis Campus, Persian Gulf Hall, Gorgan.

## **Important dates**

October 10-11-2021: Conference

October 12-13-2021: First Excursion at the Iranian Loess Plateau & Caspian Sea lowlands.

October 14-15-2021: Second Excursion at the Southern Alborz Mountains & Central Iranian Plateau.

February 15-2021: Early registration opens, call for the abstracts.

May 30-2021: End of the abstract submission.

June 15 – 2021: Early-bird registration closed.

July 15-2021: Acceptance of abstracts.

## **Fees**

Conference fees: Lunch, dinner, conference package, icebreaker, social dinner and breaks.

Excursion fees: Lunch, dinner, excursion package, bus and breaks

Conference (2 days)	Excursion 1 (2 days)	Excursion 2 (2 days)	Conference (2 days)	Excursion 1 (2 days)	Excursion 2 (2 days)
200\$	200\$	200\$	(Students & accompanying persons)		
			150\$	150\$	150\$
Iranians					
			(Students & accompanying persons)		
6000000 IRR	6000000 IRR	6000000 IRR	4500000 IRR	4500000 IRR	4500000 IRR

\* Hotel fees are excluded both during conference and excursions. Accommodations will be arranged by the conference for approximate 30 dollars per night (3 stars Hotel).

## Excursions

During excursion, the Caspian Lowlands, the Iranian Loess Plateau, the Alborz Mountains and the northernmost part of the Central Plateau will be visited (Figure 1).



Figure 1: Google earth view of the excursion sites

### **Excursion 1: Caspian lowlands and Iranian Loess Plateau**

In Northern Iran, extensive loess deposits resembling “typical glacial loess” occur on the northern footslopes of Alborz Mountains between the cities of Sari and Minoodasht and in the so called Iranian Loess Plateau (Figure 2) northeast of Gonbad-e Kavoos (Lateef 1988, Kehl et al. 2005, Frechen et al. 2009, Vlamincx et al. 2016). During the last years, several loess-soil sequences located on the northern foothills of Alborz Mountains and within the ILP have been studied. Unweathered (primary) loesses in Northern Iran show a typical loess texture, dominated by high silt contents of up to 88 % and a median grain size ranging from 8 at the section at Neka to 34  $\mu\text{m}$  in Agh Band . In the studied sections (Now Deh and Neka) in ILP luminescence age study of the upper most loess layers age back to 60 ka, suggesting that the uppermost loess layers accumulated during the last glacial (Kehl et al. 2005 and Frechen et al. 2009). The palaeosol horizons age are related to the last interglacial and the parental loess to OIS 6 (Frechen et al. 2009). In the City of Gorgan and its surroundings, several former brickery pits and road cuts expose loess deposits, more than 30 m thick, which cover the northern foothills of Alborz Mountains to the west and east of the city. Sadabad section in Gorgan will provide an access to these loess deposits and intercalated palaeosols.



Beside thick loess-palaeosol sequences several isolated linear dunes and barchans are developed between the south of Atrak River and the north of Gorgan River, on the flat lowland which spread between the Caspian Sea (West), Kopet Dagh and Alborz Mountains (East and South) and Karakum desert (North). The dunes strike WNW-ESE and attain maximum heights of 15 m to 30 m above the surface of the plain (Kehl et al. 2017). Sand dunes especially in eastern Caspian lowlands, Incheh-broun, provide valuable information in terms of palaeoclimate conditions and Caspian Sea level changes. Sand dunes accumulation in the area is happened 10.6 to 8.4 ka. Mostly of those are parabolic type and reflecting arid to semi-arid palaeoenvironmental conditions with sparse vegetation and predominance of easterly winds at the time of dune formation. The spatial and temporal distribution pattern of the studied dunes reflects a quick regression of the Caspian Sea during the Early Holocene, probably following the so-called Mangyshlak regression (Rahmizadeh et al. 2019)

There are 23 mud volcanos in Golestan province, among them Gharenyaregh, Neftlije, Sofikam and Inche mud volcanoes in Gorgan Plain (SE Caspian Basin) are active and erupting mud and gas. Gharenyaregh mud volcano (GMV), with the largest crater (500 m), has been generated from the Kopeh Dagh part of the deeper Gorgan Plain (Omrani and Raghimi 2018).

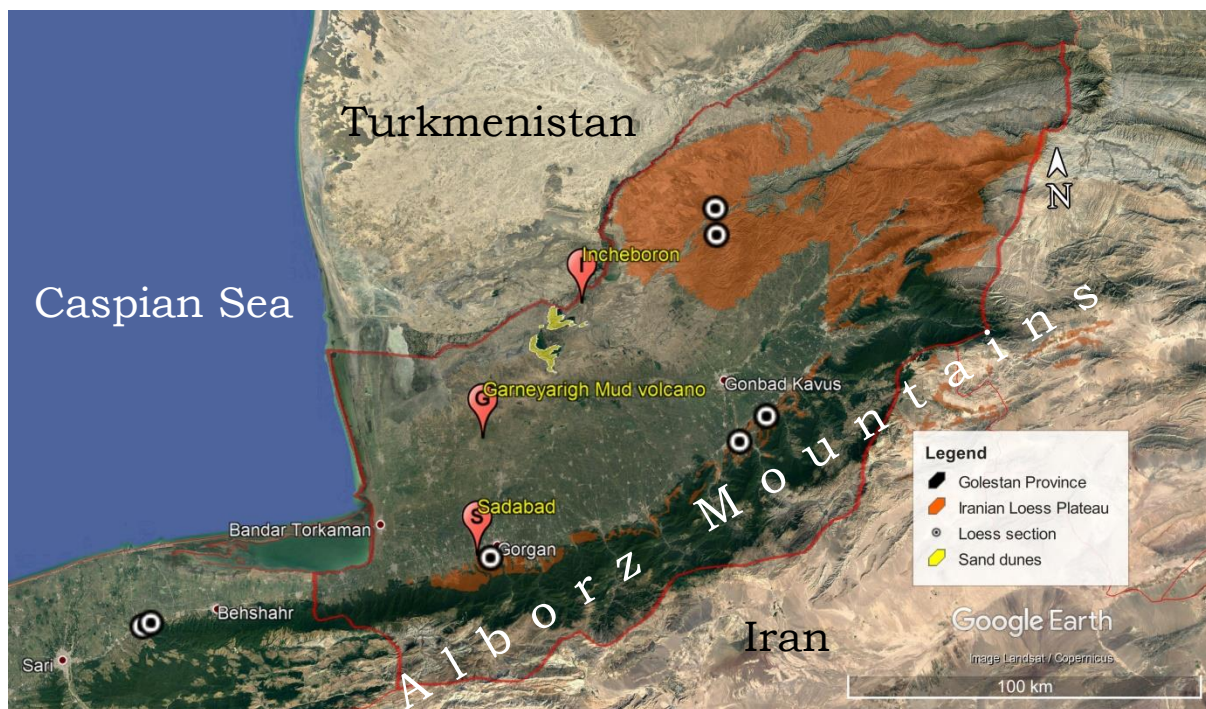


Figure 2: Satellite view of Iranian loess plateau, sand dunes, Mudvolcano and studied loess sections in Golestan province

## Excursion 2: Alborz Mountains and Central Plateau

During the excursion Badab-e Surt colorful spring in Sari, Cheshmeh Ali spring as a part of Damghan fault (length 100 km) close to Teppe Hesar site (4000 BC) and Haj Aligoli desert (Figure 3) combination of Sand dunes, Nebkha deposits and salt playa, will be visited.



Figure 3: Satellite view of Haj Aligholo Playa, Cheshmeh Ali and Badab-e surt springs

### Badab-e Surt spring

Badab-e Surt spring (BSs) lying at about 1,841 m asl in Alborz Mountain ranges is located in Northern Iran (Mazandaran province), 100km of Southern Sari city and east of Orost village, it is recognized as a World Heritage Site. A few other places in the world resemble it, including the Pamukkale in Denizli in southwestern Turkey, Mammoth Hot Springs in the USA, and Huanglong in Sichuan Province of China (Sotohian and Ranjbaran 2015). Geologically the spring comes from Shemshak Formation a thick sequence of siliciclastic sediments and coal-bearing deposits.

BSs (Figure 4) is including two springs, one with the saline and the other spring water has a sour taste and orange color. They formed during Pleistocene and Pliocene, by the time the discharged cool bicarbonate-rich waters from these springs has resulted in the formation of red, orange and yellow travertine terraces with crystalline crust, pisoid, tufa, and carbonate black muds lithofacies (Sotohian and Ranjbaran 2015).



Figure 4. Badab-e Surt Spring



## Haj Aligoli desert

Haj Aligoli /Chah-e-jam/Damgan desert is located at about 1050-1094 m asl in the southern Alborz Mountains close to dry plains of Iran central plateau and southeast of Damgan city (Semnan province). The desert area is 2391 sq.km; average temperature during summer season (JJ) is 48 °C and -5 °C in winter (JF) (Vahdati Nasab and Hashemi 2016). Damgan desert is a sedimentary-structural phenomenon (Ahmadi 1999). Due to poor vegetation, negative effective precipitation and wind activity desert landforms Nebkah, Barkhan, Seif and Sand dunes are dominant in the area (Vali and Musavi 2010).

Based on sedimentology Damgan desert can be divided into three parts. The first part, which comprises 47% of the desert, is the flat plate of clayey sediments, the second part is the wet or swampy area, which covers an area of about 34% of the surface of the desert and finally the remained central part is a salt desert (Figure 5) (Krinsley 1970).

Discovered Upper/Epipaleolithic periods settlement evidences in the area indicating that climate during the late Pleistocene was different from than present (Vahdati Nasab and Hashemi 2016).



Figure 5: Damgan Salt Playa

## Cheshmeh Ali spring

The biggest karstic spring in Semnan province called Cheshme-Ali (CAs)(Figure 6) is located at 30 km of NW Damghan and is one of Damgan desert catchments. CAs water discharge is 500-700 l/s and which provides drinking water for part of Semnan city and 25 nearby villages. Average annual precipitation of the CAs watershed is 155 whereas the number for the evaporation is 1900 mm. Geologically CAs is a part of eastern Alborz zone which is combination of the thick Delichae and thin Lar calcareous formations (Hosseini et al. 2018).



Figure 6: Cheshmeh Ali and the constructed palace

## **Contact**

Please do not hesitate to contact us for further information.

Email: [lrqua2020@gmail.com](mailto:lrqua2020@gmail.com); fkhormali@gau.ac.ir

Contact address: Soil Science Department, Gorgan University of Agriculture Sciences and Natural Resources, Pardis Campus, Gorgan.