

Polyphase deformation in Golpaygan metamorphic complex, Sanandaj-Sirjan Zone, Iran

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Geological Setting

The Golpaygan metamorphic complex in north of Golpayegan city is a part of Sanandaj-Sirjan zone [1]. This zone is the metamorphic belt of the Zagros Orogen in the western Iran that formed by Neo-Tethys initiation and closure events between Arabian plate and Iranian microcontinent [2, 3]. This complex lithologically consists of phyllite, mica schist, garnet mica schist, marble, quartzite, amphibolite, metavolcanics and gneiss [4].

Deformations and related structures

Three stages of deformations can be recognized in this area. First deformation (D1) was associated with a regional metamorphism from lower greenschist to amphibolite facies that has developed during NE subduction of Neo-Tethys oceanic crust under Iranian microcontinent in late Jurassic. First foliation (S1) has developed during this deformation that has folded intensely by late deformations and doesn't show distinct direction. Second deformation (D2) is the most important deformation in the area and it can be recognized by isoclinal and recumbent folds with NW- SE axes, axial plane foliation (S2) and shear zones. It is considered as a progressive deformation with ductile shortening and thrusting from NE to SW. The deformation has formed during collision between Arabian plate and Iranian microcontinent in late Cretaceous to Palaeocene age [5]. Third deformation (D3) consists of an echelon gentle folds and strike - slip faults that have developed during continuous deformation with ductile- brittle condition. This deformation has developed during regional dextral transpression after collision.

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Survey of Aeolian airborne dust over Iran from the point of view geochemistry and mineralogy (case study: Western Iran and North of Persian Gulf and Sea of Mokran)

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Introduction and Methods

This research aims to show the characteristics and particle-related pollution of dust storms reaching Iran and North of Persian Gulf and Sea of Mokran. Satellite images have shown that these Aeolian dust storms originate in Arabian countries in Middle East and North of Africa continent. We have conducted numbers of analysis to reveal the MMD, SEM, XRD and ICP-MS to detection of the most important source areas with regard to radioactive, heavy and toxic trace elements [1,2].

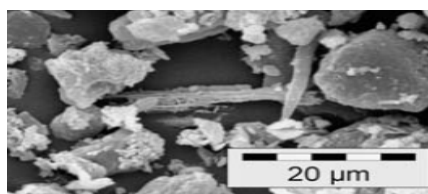


Figure 1: a sample of SEM image of Aeolian dust reaching Iran

Elements	o	c	Si	Al	Ca	Mg	k	Na	Radioactive & Toxic Traces
Iraq	47	23	13	5	2	3	3	2	2
Saudi Arabia	45	21	16	3	4	5	2	3	1
Syria	46	22	15	4	2	3	3	3.3	0.7
Kuwait	48	16	20	2	3.5	3	3	3	1.5
Occupied Palestine	52	23	16	1	2	1.6	2	1	0.4
Egypt	49	17	19	2	4	3	3	2.7	0.3

Table 1: elements compositions from the countries nearby Iran

Result has revealed that the most dangerous source areas of dust storms reaching Iran are located in Iraq country and war implications by turns have the worst effect on Iraqi environment. Soon after dust storm, Iran country be affected by Toxic, Radioactive Elements and new Microorganism (Bacteria, fungus, viruses) and make all kinds of Human disease and soil pollution and lead to decreasing of forest and plant communities.

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