

Tiny Dust Particles From Sahara Could Help Scientists Study Climate Change

ScienceDaily (Oct. 4, 2008) — Scientists of the Soil Science and Geopharmacy Research Group of the University of Granada (Spain), directed by Rafael Delgado, have discovered and characterized a new type of atmospheric aerosols named "iberulites," which could be useful for the study of relevant atmospheric reactions from Earth.

See also:

Matter & Energy

- Nature of Water
- Thermodynamics

Chemistry

- Earth & Climate
- Atmosphere
- Air Pollution
- Environmental Issues

Reference

- Dust storm
- Soil
- Acid rain
- Soil science

Researchers José Luis Díaz Hernández, of the Andalusian Research and Farming, Fishing, Food, and Ecological Production Training Institute (IFAPA) and Jesús Párraga Martínez, of the Department of Edaphology and Farming Chemistry of the University of Granada, have insisted that such iberulites form in the troposphere from mineral small grains emitted from desert soils and bordering regions, burst into the atmosphere in a chaotic way, collect water vapour

which becomes condensed and make up little rain drops. "As we all know," the scientists point out, "the Sahara is a powerful emitter of

atmospheric dust, which travels to the Amazon and Caribbean regions, including Florida, also reaching the North of Europe, Israel and even the Himalayas. Such mineral grains, which contain iron, calcium, sulphur and sometimes phosphorus, fertilize the soil, forests and plankton of the oceans, lakes and seas they go through."

Swept away through the air

Such small drops of water and mineral dust grow in size as they collide with others and capture more dust, and are subject to characteristic hydrodynamic processes. As they get dry, they are swept away by powerful air drafts. During this trip – which can take several days – the iberolites experience a series of physical-chemical reactions and processes simultaneously, such as the incorporation of SO₂ from volcanic areas (the Canary Islands), or the adhesion of planktonic organisms, virus and marine salts in the surface of the immature iberulite as they get close to the Atlantic area of Portugal, Morocco and the Gulf of Cádiz. The images of the iberulites taken with electronic microscopy, carried out in the Centre for Scientific Instrumentation of the UGR, are quite novel and give evidence of it.

Hydrodynamic processes, mechanically generated in such minuscule water and dust drops, form the shape of the artefact until it becomes a new atmospheric aerosol particle called iberulite with a vortex, quite similar to a micro spherulite. The researchers have pointed out that, obviously, "the fact that they have been colected in Granada does not exclude that, due to gravity, the biggest ones also fall in the Earth's surface before arriving here."



Iberulite observed with an electronic microscope (SEM). (Credit: University of Granada)

Ads by Google Advertise here

Oposiciones en Granada

Oposiciones Aux Administrativo en Granada. Prepárate con Garantías OposicionAuxiliarAdministrativo.com

ISB - Top Int'l B-School

Associate Of Wharton, Kellogg, LBS. Register & Meet Us-Madrid, 17 Oct www.ISB.edu

ING DIRECT

Un Gran Banco que hace Fresh Banking www.ingdirect.es

Global Warming Effects

Facts & News Stories Surrounding Today's Most Important Global Issue www.FT.com/climate

Granada Rental Apartments

17thC boutique apartments in the Albayzin. Book Live Online.

www.outlet4spain.com

Related Stories

African Dust Brings Drought, Rain Across Atlantic (July 17, 2003) — Dust from the Sahara Desert in Africa may modify clouds and rainfall both in Africa and across the tropical North Atlantic as far away as Barbados, according to a study that uses data from NASA ... > read more

Science Video News

Is It A Planet? Exotic Object Orbits Star



Dust Storms: Early Warning Atmospheric Physicists designed ar early warning system to predict the path and danger of developing dust storms. They linked together storm. > full story

Atmospheric Chemists Show Morning Fog Captures Particulate Matter

Improving Accuracy Of Hurricane Forecasts Climate Change Researchers Ask Amateur Botanists To Record Signs Of Spring

more science videos



Breaking News

... from NewsDaily.cc

Gene discovery may help hunt for blindness cure

India's first moon mission to take off on October 22

Indonesia raises alert level of Sulawesi volcano Asteroid to burn up

before hitting Earth Safer prenatal

Down's syndrome test found in U.S

more science news

In Other News ... UK bank funding talk





Novelty of the discovery

This discovery has been recently published in the journal Geochimica et Cosmochimica Acta, one of the highest-impact journals in the group Geochemistry & Geophysics of the Journal Citation Reports.

The relevance of the discovery, Professor Párraga says, is that "the atmosphere sends us a 'present' manufectured by her, which tells us that the law of nature is able to create very beautiful and internally structured shapes from chaos in spite of the turbulent environment in which they are created."

In this research work, which has taken six years, they have fully revealed the mechanisms for the formation of iberulites (annotating the maximum and minimum size); on the other hand, they could be useful as environmental or paleoclimatic

Tropical Cloud 'Dust' Could Hold The Key To

Climate Change (Oct. 27, 2005) — Scientists at the University of Manchester will set off for Australia this week to undertake an in-depth study of tropical clouds and the particles sucked up into them to gain further insight into ... > read more

New Computer Model Tracks And Predicts Paths

Of Earth's Dust (Sep. 24, 2001) — A new computer model of the atmosphere can now actually pinpoint where global dust events come from, and can project where they're going. The model may help scientists better evaluate the impact ... > *read more*

NCAR Model Shows Decrease In Global Dust By

2100 (Dec. 9, 2003) — One of the first global-scale simulations of dust and climate from preindustrial times to the year 2100 projects a worldwide decrease in airborne dust of 20–63% by the end of this ... > *read more*

hits stocks, sterling

Markets want political lead, rate cuts for crisis

Obama has 3-point national lead on McCain

Palin warns Florida voters of "rough" campaigning

U.S. official says online drug videos threaten teens

Sen. Stevens on tape: "might serve time in jail"

U.S. dismisses

Descubrir meetic gratis y encontrar el amor



the reasons why certain Mediterranean soils are very different to other soils around the world," the authors explain.	matter could potentially affect the world's climate, its oceans and even the food > read more	Copyright Reuters 2008. See Restrictions.	
Finally, the scientists conclude their work stating that the iberulites "are the tangible evidence of the hydrodynamic theory	Number of stories in archives: 44,032	Free Subscriptions	from ScienceDa
which give raise to morphologies with a vortex, which had been confined and explained up to now in laboratory studies."		Get the latest science news with our free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader: Email Newsletters RSS Newsfeeds	
Adapted from materials provided by Universidad de Granada.			
 APA MLA MLA MLA Universidad de Granada (2008, October 4). Tiny Dust Particles From Sahara Could Help Scientists Study Climate Change. ScienceDaily. Retrieved October 7, 2008, from http://www.sciencedaily.com /releases/2008/10/081003122551.htm 		Feedback w	e want to hear from yc
		Tell us what you think of the new ScienceDaily v welcome both positive and negative comments. Have any problems using the site? Questions? Your Name:	
		Your Email:	
Find with keyword(s): Enter a keyword or phrase to search Sci the latest news stories, reference articles	enceDaily's archives for related news topics, s, science videos, images, and books.	Comments:	
Ads by Google	Advertise here		
New Colonial Style Hotel75 Hotels in GranadaIn the heart of Granada, NicaraguaBook your hotel in Granadapool,a/c,tv,internet,parking.Find your hotel on a city mwww.hotelplazacolon.comwww.Booking.com/Granada	Oferta París Orly por 34€a online.Vuelos directos desde Granadaap!Todo incluido, ¡Reserva ya on-line!lawww.transavia.com/Granada-Paris	Click button to submit feedb	ack: Send It

About This Site | Editorial Staff | Awards & Reviews | Contribute News | Advertise With Us | Privacy Policy | Terms of Use Copyright © 1995-2008 ScienceDaily LLC — All rights reserved — Contact: editor@sciencedaily.com

http://www.sciencedaily.com/releases/2008/10/081003122551.htm

