



CRD FRIENDS

NEWSLETTER



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A RECENT VISIT TO CRD'S HEADQUARTERS

by Joe Dagdigian

Recently my wife and I had the pleasure of visiting Armenia's Cosmic Ray Division again. We have visited every year since 1999 and every year outstanding scientific advances continue at the CRD; thanks to the leadership of Professor Chilingarian; the dedication of the staff, including an increasing number of young scientists, engineers; and Diaspora support.



Discussing aspects of the SEVAN detector

When I mentioned to CRD's head, Professor Ashot Chilingarian, how impressed I was with the young scientists, engineers, and staff he had assembled at the CRD, he simply replied, "Of course, this is our road to the future."

During our visit this summer (2008) to CRD's headquarters in Yerevan, the place was buzzing with bright young Armenian men and women working on all aspects of CRD's operations. Most had just returned from a class on the complex techniques of cosmic ray data analysis taught by Professor Chilingarian.

We met a young woman who is an undergraduate physics student at Yerevan State University, and a young man who had recently begun his PhD studies. They had just returned from a two-week shift on an experiment at CRD's research station at 10,500 feet altitude atop Mt. Aragats. Another young woman was editing CRD reports while a graphics designer was putting the finishing touches on CRD's 2009 calendar. There were several other young scientists, including a young PhD research assistant, an impressive young electrical engineer, and a mechanical designer, who were all enthusiastically working on their projects. I had previously met many of these talented and impressive young Armenians; but seeing them energetically working together as the "CRD team" was inspiring.

The CRD has put Armenia on the international scientific map conducting world-class research since 1943. Even during the difficult years of the early 1990s, with shortages of energy, food, and almost everything else, CRD's world-class research continued - to the amazement of many. Most of CRD's funding comes from non-Armenian sources, and the support of the Diaspora has been and remains crucial for CRD's continued success. CRD's staff remains deeply appreciative of the confidence and support the Diaspora has shown.

Joe Dagdigian is one of the co-founders of the Support Committee for Armenia's Cosmic Ray Division.



SAVE THE DATE AND PLAN TO ATTEND!
SUNDAY, MARCH 15, 2009 AT 2:00 PM

BENEFIT CONCERT FOR THE CRD
FEATURING

SERGUEI AZIAN

CONCERTMASTER OF THE COPENHAGEN PHILHARMONIC ORCHESTRA

MARIANNA SHIRINYAN, ACCOMPANYING PIANIST

MEMBER OF ESBJERG ENSEMBLE IN DENMARK

CALIFORNIA PALACE OF THE LEGION OF HONOR
100 34TH AVENUE, SAN FRANCISCO

CRD STUDENTS RECEIVE MASTERS DEGREES

Bagrat Mailyan and Tigran Karapetyan, students from the Physics Department of Yerevan State University, received their Masters degrees this year. Professor Ashot Chilingarian was their advisor while they prepared their Masters theses at the Cosmic Ray Division of the Alikhanyan Physics Institute.



Bagrat Mailyan - CRD's newest PhD student

Bagrat's thesis, "*Estimation of the Energy Threshold of NAMMM and SEVAN Particle Detectors*", investigated the Nor Ambert multi-dimensional muon monitors and the Space Environmental Viewing and Analysis Network (SEVAN) monitors. Bagrat defended his thesis with honors. He is currently a PhD student at the CRD, conducting research on the daily variations of cosmic ray intensity in the 24th solar cycle.



Tigran Karapetyan - young researcher at CRD

Tigran's thesis, "*The Barometric Coefficient for the Aragats Cosmic Ray Monitors*" was completed with high marks. He is currently employed as a research assistant at CRD.

Thanks to Mary Ana Brown for partially sponsoring Bagrat and Tigran. We wish them both continued success.

ARMENIA AT 37TH COSPAR CONGRESS IN CANADA

Founded in 1958, the Committee on Space Research (COSPAR) is considered the international community's foremost space science research forum. COSPAR's objective is to promote international scientific research in space with an emphasis on the exchange of scientific results. COSPAR provides the world's largest interdisciplinary forum for the exchange of recent results in space research. The Committee's activities include organizing the biennial COSPAR Scientific Assembly, as well as smaller meetings on well-defined topics called COSPAR Colloquia and COSPAR Capacity Building Workshops.

The Canadian Space Agency and the National Research Council of Canada co-sponsored the weeklong 37th COSPAR Congress in July 2008. More than 2,500 scientists and students from 50 countries attended the meeting. 1,500 reports were presented in more than 87 sessions covering all topics of space research.



Professor Ashot Chilingarian at the COSPAR Congress

The head of the Cosmic Ray Division, Professor Ashot Chilingarian, is Armenia's official representative to COSPAR. He plays a critical role on the Committee's Council, particularly in the area of promoting space research for developing countries. During the COSPAR assembly in Canada, he chaired a session and presented three papers resulting from cosmic ray research in Armenia.

COSPAR co-sponsored with CRD the "Solar Extreme Events 2005" conference held in Armenia that attracted scientists from 11 countries. This year CRD hosts the COSPAR International Astroparticle Physics Symposium, "Forecasting of Radiation and Geomagnetic Storms (FORGES-2008)" at the end of September at CRD's Nor Amberd International Conference Center.

CRD TO MONITOR SOLAR RADIO SIGNALS

Periodically massive magnetic bursts, ejected from the sun's surface, come blasting towards the earth. When such coronal mass ejections (CMEs) occur, they may introduce a huge amount of energy into the earth's magnetic field causing a geomagnetic storm. These storms can disable electronics onboard satellites, and cause widespread blackouts by inducing large power surges in power line equipment. They may also subject astronauts to unhealthy doses of radiation.

"Since the radio signal moves at the speed of light while the particles lag behind, we can use a CME's radio noise to give warning that it is generating a radiation storm that will hit us soon." says Dr. Natchimuthuk Gopalswamy of NASA's Goddard Space Flight Center in Greenbelt, Maryland. *"This will give astronauts and satellite operators anywhere between a few tens of minutes to a couple of hours to prepare, depending on how fast the particles are moving."*



Professor Hartmut Gemmeke from Germany demonstrating the installation of his new antenna at Mt. Aragats

On September 1, 2008 Professor Hartmut Gemmeke from the German Research Center at Karlsruhe gave a seminar at CRD during which he proposed installing a new type of antenna to detect radio-bursts from solar flares and CMEs. Karen Arakelyan, David Pokhsranyan and Gagik Hovsepyan from CRD's staff installed the new antenna and began registering the frequencies and intensities of received radio signals in Yerevan. This will be followed by energy spectra measurements at CRD's Nor Amberd and Aragats research stations on Mt. Aragats. After collecting sufficient data, a decision will be made on the location and configuration of a new antenna network for solar physics and space weather research. The traditional fruitful collaborations between the CRD and the German physicists continue.

ROBERT APKARIAN MEMORIAL GROVE

Professor Robert Apkarian was the founder and director of the Integrated Microscopy and Microanalytical Facility at Emory University in Atlanta, Georgia. He is recognized worldwide for developing methods now considered essential to the field, and he is responsible for forming Armenia's first microscopy society. He was awarded the Recognition of Service Award by the Microscopy Society of America and was selected to be an honorary member of the Armenian National Academy of Sciences. He passed away in February 2006 in a car accident.

Professor Juliette Apkarian, Professor of Russian Studies, at Emory decided to plant a grove in her beloved husband's memory through the Armenian Tree Project (ATP. ATP is a nongovernmental organization aiming to repopulate Armenia's forests. Contemplating her husband's love of the mountains and his commitment to science in Armenia, she chose the slopes of Mt. Aragats, near CRD's Nor Amberd research station for this grove.



Professor Juliette Apkarian planting the first tree for her husband's memory grove

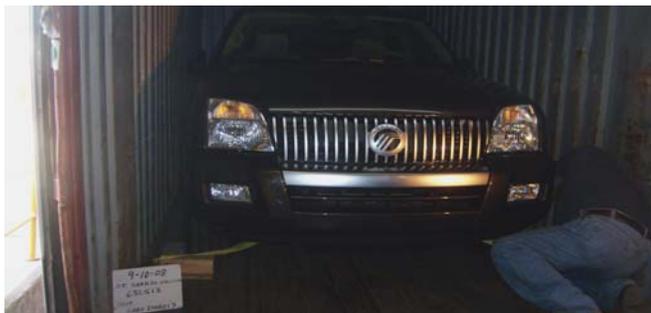
On October 22, 2006 at the dedication ceremony in honor of Professor Robert Apkarian, the first tree, a maple, was planted by Professor Juliette Apkarian herself. This event was followed by the planting of the entire grove with help from the CRD scientists, students and support staff. The CRD staff will nurture and look after this grove in the coming years.

AESA-MI DONATES CAR FOR SHIFT CHANGE ON MT. ARAGATS

Thanks to a generous donor who wishes to remain anonymous, a very critical need for the CRD is being met.

CRD scientists work three- to four-week shifts on Mt. Aragats at research stations located at 6500 ft and 10500 ft elevations. At the end of each shift, a team of scientists and technicians from Yerevan drives to each research station to relieve those already there. The transport car is in very bad shape and has broken down on the way up the mountain on many occasions. While the CRD driver has developed many innovative solutions for fixing and patching up this car, a new vehicle is needed to ensure the safety of scientists and staff.

Just in time, a miracle of miracles – an anonymous donor has provided a large contribution through the Armenian Engineers and Scientists of America Michigan Section (AESA-MI). This donation is enough to purchase a new Mercury Mountaineer for the CRD. We extend our thanks to our friends at the AESA-MI, especially Mr. Harutyun Vaporciyan, who worked very hard securing a large special discount from the Ford Motor Company. The car was shipped to the CRD in a sea container and is due to arrive in Armenia around mid-November. The container also includes boxes of clothes for the underprivileged. These were donated by families in the Detroit area. We thank St. Sarkis Church for storing the boxes until shipping day.



Mercury Mountaineer, CRD's new shift change car being secured in the shipping container

Our heartfelt thanks go to everyone involved.

2009 CRD CALENDAR ISSUED!

In August 2008 the newly designed CRD 2009 calendar, *Spectacular Armenia*, was completed thanks to the efforts of CRD's graphic designer, Narine Khachatryan, and Joe and Lisa Dagdigian. Joe and Lisa are founders and active members of Boston chapter of the Support Committee for Armenia's Cosmic Ray Division (see Joe's article on page 1). The calendars were printed and collated by the Tigran Medz printing house in Yerevan. The calendar is available from the www.crdfriends.org website and will also be sold during various Armenian events in the USA.



*2009 Spectacular Armenia Calendar
available for purchase on the website*

Gift bags printed with reproductions of ancient Armenian miniatures, Republic of Armenia commemorative stamp books celebrating CRD's achievements, and Mt. Ararat and Mt. Aragats post cards are also available. These items make perfect gifts for your Armenian and non-Armenian friends. Proceeds from these sales directly benefit the work of the outstanding scientists at the CRD.

Please visit the www.crdfriends.org for your Christmas shopping needs.

The Support Committee for Armenia's Cosmic Ray Division (SCACRD) operates under the umbrella of the Armenian Engineers and Scientists of America Inc. (AESA), a 501 (c) 3, tax-exempt (ID 95-3957498), charitable organization dedicated to promoting scientific and engineering excellence in the United States and Armenia. AESA has chapters in California, Michigan, and greater Metropolitan Washington DC area (www.aesa.org).

In Armenia, SCACRD operates under the umbrella of the National Foundation for Science and Advanced Technology (NFSAT), a non-profit, non-governmental, independent organization dedicated to the promotion and funding of science and education for peace in Armenia (www.nfsat.am).

AESA and NFSAT's financial integrity are assured by annual audits in accordance with international standards by both the IRS and the independent company Grant Thornton International.