

CRD FRIENDS NEWSLETTER



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AMERICAN GEOPHYSICAL UNION INVITES PROF. ASHOT CHILINGARIAN TO DELIVER A REPORT ON THE RECENT INVESTIGATIONS OF THUNDERCLOUDS AND ELECTRON ACCELERATION AT MT. ARAGATS

The **American Geophysical Union** (AGU) is holding its annual conference during the first week of December at the Moscone Conference Center in San Francisco. The conference attracts nearly 10,000 scientists from around the world and covers such wide ranging topics as earthquakes, planetary interactions, global warming, space weather, and recently also the phenomena of particle acceleration in thunderstorms. This new and important research arena combines the fields of terrestrial and space research. This year's AGU conference is being held from December 5 to December 9.

Come and meet with Prof. Ashot Chilingarian and Dr. Bagrad Mailyan at the reception on Sunday December 11, at 1 pm at St. John Armenian Church in San Francisco.

Because of the ground breaking research conducted on Mt. Aragats on this topic, the conference committee has invited Prof. Chilingarian, head of the Cosmic Ray Division and the director of the Yerevan Physics Institute, to report on CRD's research. Accompanying Chilingarian will be Dr. Bagrad Mailyan, one of the young scientists who recently received his PhD



Dr. Bagrad Mailyan with Prof. Ashot Chilingarian at the CRD Space Education Center

while conducting his research at the Cosmic Ray Division. Dr. Mailyan will present his work on the energy spectra of the gamma rays and the electric fields which accelerate the electrons within thunderclouds.

While in the San Francisco Bay Area during the week following the AGU conference, Prof. Chilingarian and Dr. Mailyan will visit Stanford University to deliver seminars at the Applied Physics Department and the Stanford Linear Accelerator Center. They will meet with professors and students and tour the facilities with graduate the students of the Stanford Armenian Student Association. They will also have dinner with the Stanford Armenian Student Association, attend the Knights and Daughters of Vartan annual Christmas party, and visit with the KZV Armenian School 6th, 7th and 8th grade students and parents.

The Support Committee for Armenia's Cosmic Ray Division is hosting a special reception to welcome them to the Bay Area and to give them an opportunity to personally thank the Bay Area supporters. Please come and meet with Prof. Chilingarian and Dr. Bagrad Mailyan at the reception on Sunday December 11, at 1 pm at St. John Armenian Church.

THE SUPPORT COMMITTEE FOR ARMENIA'S COSMIC RAY DIVISION INVITES YOU TO:



A RECEPTION WITH PROF. ASHOT CHILINGARIAN

SUNDAY, DECEMBER 11, 2011 @ 1:00 pm

St. John Armenian Church in San Francisco.

Admission is free. Armenian mezze will be served.

CELEBRATE THE ACHEIVEMENTS OF CRD

MARCH 24, 2012 @ 6:30 PM, HOME OF DR. & MRS. KELEDJIAN

MARCH 25, 2012 @ 2:00 PM, BEZDJIAN'S RUGS & CARPETS

Look for your invitation in the mail in February.

THANK YOU FOR YOUR SUPPORT!



SEVAN MONITOR SUCCESSFULLY INSTALLED IN INDIA

The *Space Environmental Viewing and Analysis Network*, (*SEVAN*) Cosmic Ray Detector has been successfully installed in India this February by CRD's Karen Arakelyan and David Pokhsrlyan.



Karen Arakelyan and David Pokhsrlyan with Prof. Saumitra Mukherjee in front of the SEVAN detector at Jawaharlal Nehru University in Delhi, India

SEVAN is a network of compact, stand-alone particle detectors being placed around the globe to simultaneously measure the energy and direction of travel of different types of cosmic ray particles. *SEVAN* is a vital tool for global space weather research: an international effort to provide alerts on severe space weather which damages satellites and technologies on the ground. The *SEVAN* monitors are designed and made at the Cosmic Ray Division in Armenia and placed in countries wishing to participate in ground based space weather research. The CRD scientists use their expertise to install the *SEVAN* detectors in the recipient countries and train personnel on its operation. *SEVAN*'s on-line data is shared by all the network partners and is managed by the CRD.

In February Karen Arakelyan, CRD's electronic engineer who designed the compact, state of the art *SEVAN* data acquisition system and CRD's recent PhD degree recipient, David Pokhsrlyan, traveled to Delhi India to install and commission the newest *SEVAN* space weather monitor at the School of Environmental Sciences (SES) of Jawaharlal Nehru University (JNU).

The *SEVAN* monitors are also powerful tools for researching the acceleration of elementary particles in the upper, middle, and lower atmosphere within thunderclouds. CRD is at the forefront of this new area of research which has captured the attention of top scientific organizations around the world. Prof. Chilingarian and Dr. Mailyan will report on this research at the annual AGU conference (see cover story).

CRD SCIENTISTS AT THE INTERNATIONAL COSMIC RAY CONFERENCE IN BEIJING



Dr. Bagrad Mailyan (top right) and Dr. Levon Vanyan (lower left) at the International Cosmic Ray Conference in Beijing, China

The 32nd International Cosmic Ray Conference (ICRC2011), hosted and organized by the Institute of High Energy Physics and the Chinese Academy of Sciences, was held in Beijing from August 11 to August 18, 2011. Following the tradition of past conferences, the ICRC2011 dealt with a broad range of topics covering cosmic ray physics, gamma-ray astronomy, solar physics, and high energy phenomena in the terrestrial atmosphere.

Armenia's delegation from the Cosmic Ray Division of the Artem Alikhanyan National Laboratory (Yerevan Physics Institute), included Bagrat Mailyan, Roman Martirosov, and Levon Vanyan who reported on the research being conducted at the Cosmic Ray Division:

Dr. Bagrat Mailyan, a recent young PhD recipient, presented two papers on CRD's research: "*Thunderstorm Ground Enhancements (TGE-s)*" detected at CRD's Aragats research station and "*The energy spectra of the thunderstorm correlated electron and gamma ray fluxes measured at Aragats*". Both talks described research into the new field of gamma rays generated within the earth's atmosphere by thunderstorms.

Dr. Levon Vanyan discussed "*Simulations of the Relativistic Runaway Electron Avalanches (RREA) in the thunderclouds above the Aragats Space Environmental Center (ASEC)*".

**IT WAS A SPECIALLY HARSH WINTER:
THE ANNUAL RITUAL OF CLEARING THE
ROAD TO THE RESEARCH STATION ON
MT. ARAGATS AT 10,500 FT. ELEVATION**



Need we say more?

**BIKATHON BENEFITS THE WORK OF THE
COSMIC RAY DIVISION SCIENTISTS**



**Hope For Armenia Bikathon 2011 participants,
Vatche Soghomonian, Saro Hartunian, and
Anahid Yeremian, riding to support the CRD.**

On July 28, 2011, bikathon riders led by Vatche Soghomonian, the founder of *Hope For Armenia Bikathons*, rode from Montreal in the Quebec province of Canada to Quebec City in 3 days. They rode 300 km on the scenic historic route, Chemin du Roi, the King's Road.

Saro Hartunian from New Jersey, Vatche Soghomonian from Fresno, and Anahid Yeremian from San Francisco took on the challenge to raise awareness of the groundbreaking work of the Armenian scientists at the Cosmic Ray Division and to raise funds. Among them, they raised nearly \$10,000, just in time to support the annual summer repairs at CRD's research stations on Mt. Aragats at 6,500 and 10,500 ft elevation, to be ready to face the next winter. **MANY THANKS TO OUR SUPPORTERS.**

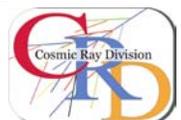
Next year the *Hope For Armenia Bikathon* for CRD will retrace the inaugural "Capital to Capital" ride. The ride will start on June 4, 2012, from the Main Square in Stepanakert and end on June 7 at Republic Square in Yerevan. Support van and police escort to clear traffic will be provided. To join the ride contact us at the I WANT TO HELP link on WWW.CRDFRIENDS.ORG.

Yes, I want to promote Armenian science and education by supporting the excellent work of the dedicated scientists, engineers, technicians, & students of the Cosmic Ray Division of Artem Alikhanyan National Laboratory (formerly Yerevan Physics Institute).

Name _____ Address _____

My contribution is in the amount of \$2000 \$1000 \$500 \$200 \$100 \$_____

Please send this cut-out with your check, payable to **AESA-CRD**
And mail to the Support Committee of Armenia's Cosmic Ray division at:
AESA-CRD, P.O. Box 655, Menlo Park, CA 94026



CRD's VMAV PROJECT TO HONOR THE MEMORY OF A GREAT SUPPORTER



Sandi & Kirakos Vaporciyan with Prof. Ashot Chilingarian at the Aragats Research Station Cafeteria

Mr. Kirakos Vaporciyan and his wife Sandi, inspired and encouraged by Kirakos' brother and long time CRD supporter, Mr. Harutyun Vaporciyan, visited the CRD research stations in the summer of 2005. They were so impressed with the achievements of the scientists and the difficult conditions in which they accomplished their world renowned work, that Kirakos and Sandi became dedicated supporters of the Cosmic Ray Division.

Sadly on February 5, 2011 Kirakos passed away leaving behind a legacy of kindness, vision, and support for Armenia. To fulfill one of his wishes, the Vaporciyan family is sponsoring a special project at the Cosmic Ray Division. In gratitude to this generous family and to honor the memory of Mr. Kirakos Vaporciyan, Prof. Chilingarian has decided to name this the *Vaporciyan Multivariate Analysis and Visualization (VMAV)* program.

The project's scope is to develop an educational WEB 2.0 environment to integrate and analyze multivariate experimental and model information for space weather and geophysics. The project start date is January, 2012.

2012 CRD CALENDAR ISSUED!

CRD's calendar, *Spectacular Armenia 2012*, is ready, thanks to the efforts of CRD's graphic designer, Narine Khachatryan, and one of the founders of the Support Committee for Armenia's Cosmic Ray Division, Joseph Dagdigian. The *Spectacular Armenia 2012* calendar features photographs from different regions of Armenia. You can visit Armenia every day by paging through this calendar on your wall. The Tigran Medz printing house in Yerevan printed the calendars. CRD staff members and Diaspora supporters submitted the superb photographs. Our thanks to Prof. Ashot Chilingarian, Dr. Arthur Reymers, Dr. Ara Babayan, Dr. Arman Karakhanyan, Mr. Paul Rhode, Dr. Nancy Kushigian, and Mr. Joseph Dagdigian for photo contributions.



2012 Spectacular Armenia Calendar
available for purchase on the website and selected stores

The calendar is available from the www.crdfriends.org website and will also be sold during various Armenian events in the USA. 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.

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, New York/New Jersey, and the 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's 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.