

**Quarterly Report of  
The Activities of IEEE GRSS Delhi Chapter  
*From July 2012- October 2012***

The Delhi Chapter has planned fortnightly lecture every month. Many activities have also been carried out in the ICRS premises like Lectures, showing of scientific documentary, Visit and Quiz. Many renowned personalities have taken the lectures on Microwave and its devices, Impact of Satellite Communication on Society and the documentary was shown to the IEEE GRSS Members & Participants.

In this series of the four months total 3 Lectures and 3 Documentary Movie has been shown. On 14<sup>th</sup> July 2012 the lecture was taken by Prof. G.S Raghuvanshi on the “Two Terminal Microwave Semi-conductor Generators” Campus Director of JIET Eng. College, Jodhpur. In his lecture he had described about All are Negative Resistances Devices, Carrier Dynamics in DNR Region, Tunnel Diode, Gunn Diode , Impact Diode and Oscillators/Amplifiers.

On 28<sup>th</sup> July 2012 the lecture on “Impact of Satellite Communication on Society” was taken by Prof. K.K. Arora. He describes about Impact on personal life, Impact on Industries (Basics of Satellite and Advantages –Disadvantages),Types of Satellites and Bandwidth & Capacity Allocation and its Future development.

On 11<sup>th</sup> August 2012 the documentary video on the MARS Mission was shown. In this video the spacecraft voyages to the Red Planet have shown. New discoveries send us straight back to the drawing board to revise existing theories. Mars has polar ice caps and clouds in its atmosphere, seasonal weather patterns, volcanoes, canyons and other recognizable features. However, conditions on Mars vary wildly from what we know on our own planet. Over the past three decades, spacecraft have shown us that Mars is rocky, cold, and sterile beneath its hazy, pink sky. We've discovered that today's Martian wasteland hints at a formerly volatile world where volcanoes once raged, meteors plowed deep craters, and flash floods rushed over the land.

On 27<sup>th</sup> August 2012 the documentary video on the Atmosphere has shown. An atmosphere is a layer of gases that may surround a material body of sufficient mass, and that is held in place by the gravity of the body. An atmosphere may be retained for a longer duration, if the gravity is high and the atmosphere's temperature is low. Some planets consist mainly of various gases, but only their outer layer is their atmosphere.

On 8<sup>th</sup> September 2012 the documentary video on Antarctica was shown to the IEEE Members and participants. Antarctica is a frozen, windswept continent, so hostile and remote that it has no permanent inhabitants. Scientists working here have made many discoveries from studying Antarctica's land and atmosphere, and from clues buried beneath the ice. These discoveries also reveal signs of changes in the future that could affect us all.

On 22<sup>nd</sup> September 2012 the documentary video on Ocean was shown to the IEEE Members and the participants. An ocean is a body of saline water that composes a large part of a planet's hydrosphere. Earth's global ocean is the largest confirmed surface ocean on all observable planets. Approximately 72% of the planet's surface ( $\sim 3.6 \times 10^8$  km<sup>2</sup>) is covered by saline water that is customarily divided into several principal oceans and smaller seas, although some sources prove that the ocean only covers approximately 71% of the Earth's surface.

On 6<sup>th</sup> October 2012 the documentary video was on the SMOS satellite. This satellite was launched by the ESA on 2<sup>nd</sup> November 2009. The main objective of the SMOS was to measure Sea Surface Salinity and the Soil Moisture on the Global Scale. These two parameters are very important for the human beings. Ocean salinity is crucial to the understanding of the role of the ocean in climate through the global water cycle. Soil moisture is an important aspect of climate, and therefore forecasting. Plants transpire water from depths lower than 1 meter in many places and satellites like SMOS can only provide moisture content down to a few centimeters, but using repeated measurements in a day, the satellite can extrapolate soil moisture.

On 20<sup>th</sup> October 2012 the lecture was delivered by Prof. OPN Calla on “Future Mars Exploration- By India”. In this presentation the measurement of the Dielectric Constant of the Terrestrial Analogue of Martian Soil can be measured by different method. The measurement of complex dielectric constant will be done by Wave Guide cell method and Resonant Cavity method. The complex dielectric constant of the Martian Analogue will be measured for temperatures  $-143^{\circ}\text{C}$  and  $+20^{\circ}\text{C}$ . This will simulate the conditions of MARTIAN surface. The evidence of the Water on MARS can be on Poles, Cirrus Clouds, Frost, Eroded Craters, Chaotic Terrain, Dry Rivers, Salts, Shallow Sea, Rounded Stones and MARS Meteorites

# Photo Gallery

