



**Russian State  
Hydrometeorological University**

# **WMO/CGMS Virtual Laboratory + RSHU – VLab Component**



**= ?**

**Eduard Podgaiskii  
RSHU**

# Content

- What all these newspeak words actually mean? Going into acronyms and a bit of history
- What is Vlab for you?
- What could you do for Vlab?

- 1972 – Coordination Group for Meteorological Satellites has been created to support operational weather monitoring and forecasting as well as climate monitoring, in response to requirements formulated by WMO
- 1973 – Roshydromet joined CGMS (Roskosmos joined in 2003)
- 2000 – CGMS-XXVII endorsed the concept of the Virtual Library and placed an action on WMO and the CGMS Secretariat to create a VL Focus Group to bring the concept to reality
- The group was named VLMG – Virtual Laboratory Management Group
- 2001 –VLMG-1 in Darmstadt, elaborating Structure and Goals
- 2003 –VLMG-2 in Bridgetown, Structure and Goals were reviewed and the concept of the Virtual Resource Library (VRL) was refined; CoEs, HPTE, satellite operators
- 2007 – Virtual Lab has been created in RF
- 2010 – VLMG-5 in Beijing, event calendar, [ESRC](#)
- 2012 – VLMG-6 in São José dos Campos; list of available software
- 2014 – VLMG-7 in St Petersburg last week

# ***WMO RTC in Russia***

**Vlab CoE**

***Moscow HM  
College***

*Moscow region*

***Roshydromet  
ATI***

*Moscow region*

***RSHU  
St.-Petersburg***

***The Federal Service for  
Hydrometeorology and Environmental  
Monitoring of Russia***

***The Ministry of Natural Resources  
and the Environment of  
the Russian Federation***

***Ministry of  
Education  
and Science***





# What is the VLab?

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- The VLab is a worldwide collaborative network of training centres called Centres of Excellence (CoEs) and satellite operators and agencies
- Established in 2000 by WMO and the Coordination group for Meteorological Satellites (CGMS)
- To improve the utilisation of data and products from meteorological and environmental satellites



# The VLab network

- Argentina (Buenos Aires and Cordoba)
- Australia (Melbourne)
- Barbados (Bridgetown)
- Brazil (Cachoeira Paulista)
- China (Beijing and Nanjing)
- Costa Rica (San Jose)
- Kenya (Nairobi)
- Morocco (Casablanca)
- Niger (Niamey)
- Oman (Muscat)
- Republic of South Korea(Jincheon)
- Russian Federation (Moscow and St. Petersburg)
- South Africa (Pretoria)



VLab links between CoEs and their supporting satellite operators and agencies





# VLab strategic goals

- To provide training on meteorological and environmental satellite systems, data, products and applications through the CoEs;
- To strengthen each CoE's regional training activities;
- To foster the development of applications for societal benefit at the local level by the NMHS.



Training event in the CoE  
Republic of Korea



# Working to achieve the goals

## Training Courses

VLab CoEs regularly organize training courses. These may be classroom based, totally online or even have a blended format.



Training event in the CoE  
Australia

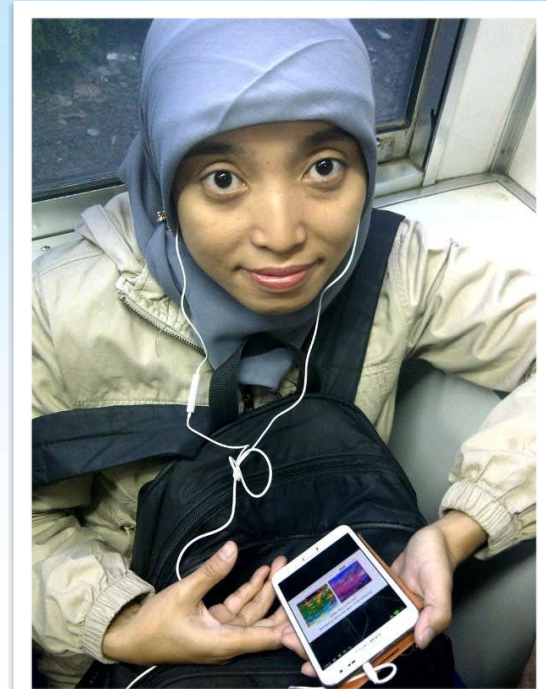




# Working to achieve the goals

## Training Courses

**VLab CoEs regularly organize training courses. These may be classroom based, totally online or even have a blended format.**



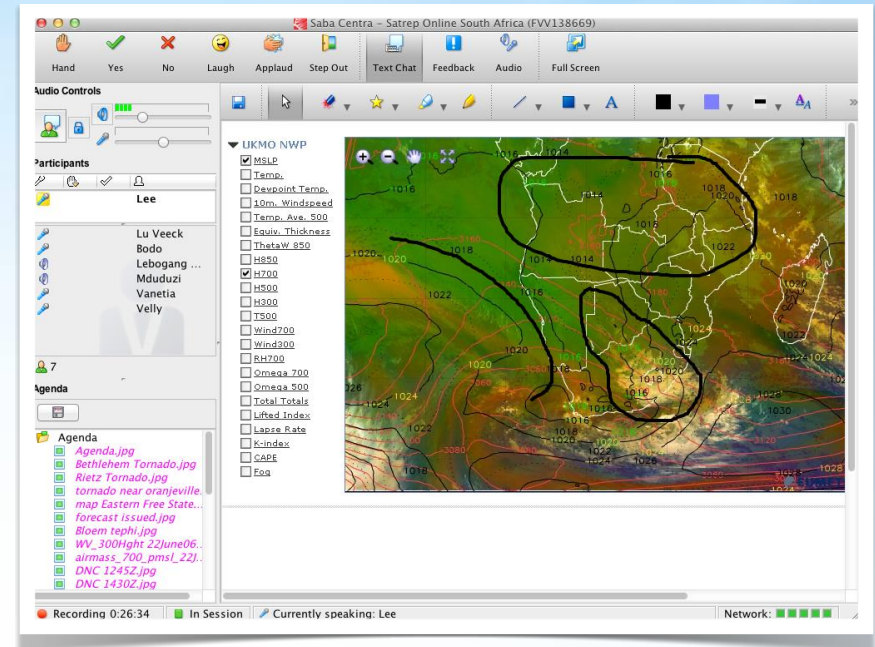
Trainee in Indonesia



# Working to achieve the goals

## Regional Focus Groups (RFG)

Several Regional Focus Groups are being organized by the CoEs to widen the access to training events and training resources to neighboring countries in their region.




Screenshot – South African RFG session



# Working to achieve the goals

## Event Weeks

Training in the format of “Event Weeks”, where a series of online sessions within a specific theme is presented within a week, are also organized and supported by the VLab.



[COURSES](#)[VLAB](#)[PROJECTS](#)[CENTRES OF EXCELLENCE](#)[EVENTS](#)[MY COURSES](#)

Navigation  
HOME > SITE PAGES > EUMETSAT PRECIPITATION WEEK

## EUMETSAT Precipitation Week 2013

From 4 to 8 February 2013 EUMETSAT organised an event week on Precipitation. More than 150 sites participated this event.

You can find the programme and details of the event below.

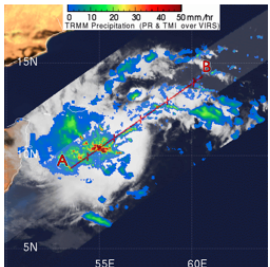
**Registration** is now closed.

You may find slides of each presentation and download recordings in the [Resources](#) section.

**Preliminary Programme:**

This event consisted of three topics:

- I VIS/IR Precipitation Estimates
- II Microwave Precipitation Estimates
- III Multi-sensor Precipitation Estimates





# Main Achievements

Event Weeks - 2013

## GEONETCast Event Week

This event was organized as a follow-up to the WMO NOAA Train the Trainer Workshop on GEONETCast in April 2013 and in response to the WMO users' survey.

### Topics included:

- an introduction to the capabilities of GEONETCast,
- disaster mitigation products,
- software to view products.

Event:	GEONETCast Event Week
Date:	3-5 December 2013
Organized by:	VLab CoEs Argentina, Barbados, Brazil, Costa Rica, CIRA, NOAA and WMO
Online sessions:	Six
Languages:	Spanish and English
Participants:	111 participants 29 countries

Resources are available in English and Spanish at:

[http://rammb.cira.colostate.edu/training/rmtc/geonetcast\\_event\\_en.asp](http://rammb.cira.colostate.edu/training/rmtc/geonetcast_event_en.asp) - for English

[http://rammb.cira.colostate.edu/training/rmtc/geonetcast\\_event\\_sp.asp](http://rammb.cira.colostate.edu/training/rmtc/geonetcast_event_sp.asp) - for Spanish







# Main Achievements

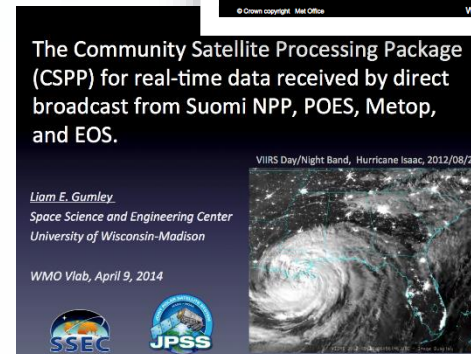
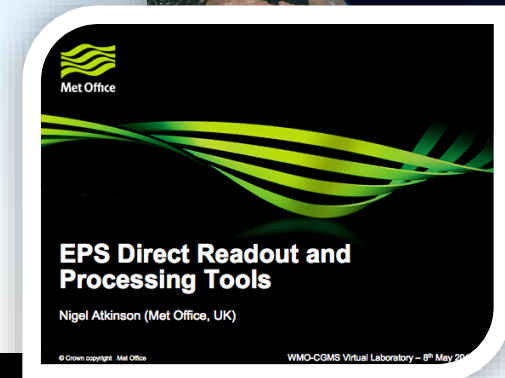
## Event Weeks – 2013/2014

### Satellite Direct Readout Events

This is a series of online events about the direct readout capabilities of polar orbiting systems.

EUMETSAT started this series of events by presenting two sessions about the EPS/Metop in 2013.

NOAA followed with recent presentations, 8 and 9 April 2014.





# Main Achievements

Event Weeks – 2013/2014

## Satellite Direct Readout Events

**Session: Suomi NPP**

**Date: 8 April 2014**

**Presenter: Mitch Goldberg – NOAA, USA**

**Session: CSPP software supporting Suomi NPP**

**Date: 9 April 2014**

**Presenter: Liam Gumley – University of Wisconsin-Madison, USA**

Event:	Satellite Direct Readout
Date:	8 – 9 April 2014
Initiative:	VLab
Online sessions:	two
Registered*:	66 13 countries All WMO-RA
Attended live*:	78 participants 9 countries WMO-RA: II, III, IV, VI

\* Numbers presented are the total for the 2 sessions.

Resources available at VLab website  
<http://www.wmo-sat.info/vlab/satellite-direct-readout/>







# Main Achievements

Event Weeks 2013

## **Virtual Round Table on Competence Requirements for Aeronautical Meteorological Personnel**

**Organised by VLab in collaboration with the WMO Commission for Aeronautical Meteorology Expert Team on Education, Training and Competences (CAeM ET/ETC) and the International Civil Aviation Organization (ICAO)**





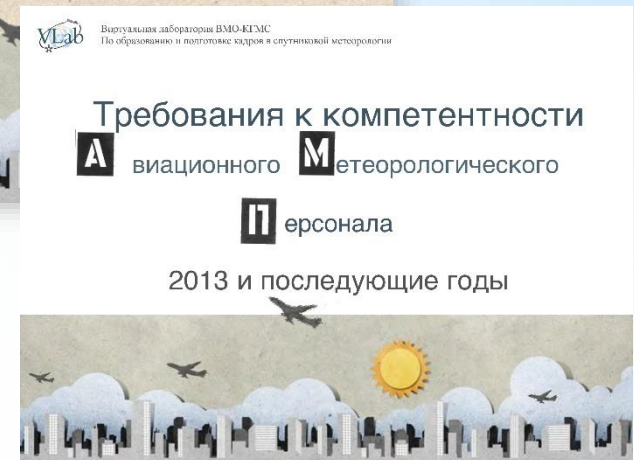
# Main Achievements

Event Weeks 2013

## Virtual Round Table on Competence Requirements for Aeronautical Meteorological Personnel

This was a series of online events covering the information on the new WMO regulations on Aviation Meteorology Competency and related matters.

The events were presented in English, Spanish, French, Russian and Portuguese.





## Countries Reached by the VRT (live attendance)

**More than 250 participants  
from 60 countries attended  
the live sessions.**





# Working to achieve the goals

## Coordination with partner programmes

VLab activities are also supported by the Cooperative Institute for Research in the Atmosphere (CIRA), the European Virtual Organisation for Meteorological Training (Eumetcal), the EUMETSAT sponsored international training project (EUMeTrain), the COMET Program of the United States, the partner RAIL WIGOS Project, and the Committee on Space Research (COSPAR).



Training on Applying EO Data to Storm Surge Modelling and Forecasting  
Organised by eSurge Project January 2014







# Main Achievements

September/2012 – December/2013

## Summary of Annual Reports – VLab Centres of Excellence

Period: Sept 2012 to Dec 2013



Countries that participated in VLab training events in this reporting period.

Type of Event	Number of Events	Number of participants
Classroom courses	51	892
Online courses	38	881
Blended courses*	2	49
RFG sessions	32	808
Event Weeks**	9	877
Total***	130	3507

\* Courses including classroom and online components;

\*\* Event Weeks have a series of online sessions within a week;

\*\*\* Numbers exclude events offered by CoE Beijing, as this data is not yet available.

## Coordination with Partner Programmes

- ❖ **WMO Train the Trainer Online Seminar for WMO RA I**  
This online course started in March and ran for 10 weeks.  
VLab was collaborating in this event with course facilitators from CoEs Niger, Kenya and Morocco, and also from EUMETSAT and VLab office (TSO).
- ❖ **Joint COSPAR and WMO Capacity Building Workshop on Satellite remote sensing, water cycle and climates change**  
This event is taking place over two weeks, from 20 July to 1 August 2014, at Tver State University, Tver, Russian Federation.  
VLab is offering a set of training sessions organised by trainers from EUMETSAT and RSHU (CoE Russian Federation).





# Main Achievements

2014



## Calendar of Events

This calendar of events shows the upcoming Training events, workshops, conferences and online sessions organised by VLab CoEs and Vlab collaborators.

Date	Title	Location	Initiative	CoE involv.	Type	Language	Attendance	Contact	Link
2014/07/20 - 2014/08/01	Joint COSPAR and WMO Capacity Building Workshop on Satellite remote sensing, water cycle and climate	Tver, Russian Federation	Other	Russian Federation	Classroom course	English	Limited	<a href="#">Andrew G. Kostianov</a>	
2014/07/29 - 2014/08/01	Science Week 2014 - Advanced Forecaster Course	Melbourne	VLab	Australia	Event week	English	Limited	<a href="#">Bodo Zeschke</a>	
2014/08/25 - 2014/08/29	ESAC-XII-E classroom phase	Nairobi (Kenya)	VLab	Kenya	Classroom course	English	By invitation	<a href="#">Ms. Stella Aura</a>	
2014/09/08 - 2014/09/12	Seminar on the use of Satellite Observations in Numerical Weather Predictions	Reading (UK)	Other		Classroom course	English	Limited	<a href="#">Dr Stephen English</a>	
2014/10/06 - 2014/10/31	ESAC-XII-F online phase	Online	VLab	Niger	Online course	French	Open	<a href="#">M. Jose Prieto</a>	
2014/10/06 - 2014/11/30	CALMet Online 2014	Online	VLab		Online course	English	Open	<a href="#">CALMet WG</a>	





# VLab Management

**Two co-chairs, currently:**

- Kathy-Ann Caesar, CIMH, Barbados;
- Prof. Grigory Chichasov, Director of the WMO Regional Training Centre in the Russian Federation, assisted by: Mr Eduard Podgaitskiy from RSHU

**Training support officer:**

- Luciane Veeck

- Virtual meetings : 3 times a year
- Face to face meetings: every 2 years
- The Vlab Management Group reports to WMO and CGMS;



VLMG-7 Meeting, Russia, 2014



# Keeping up to date

Keep up to date with VLab Activities  
at

<http://vlab.wmo.int>

- ❖ Online Calendar of Events
- ❖ VLab News
- ❖ VLab Newsletter
- ❖ Mailing list



# 9 Vlab websites are currently up and running

1. <http://vlab.wmo.int> - WMO Vlab website
2. <http://mscweb.kishou.go.jp/VRL/index.htm>
3. <http://webaula.cptec.inpe.br/visitview/>
4. <http://www.smn.gov.ar/labovirtual/index.html>
5. <http://edu.cma.gov.cn/cmatc/index.php>
6. <http://web.nuist.edu.cn/gjcenter/english/index.aspx>
7. <http://www.virtuallab.bom.gov.au/>
8. <http://meteovlab.meteorf.ru>
9. <http://www.met.gov.om:8888/coe/>



**WMO-CGMS Virtual Laboratory**

*for Education and Training in Satellite Meteorology*



# Roshydromet VLab

<http://meteovlab.meteorf.ru>

[B][B][B]





ВСЕМИРНАЯ МЕТЕОРОЛОГИЧЕСКАЯ ОРГАНИЗАЦИЯ  
РЕГИОНАЛЬНЫЙ УЧЕБНЫЙ ЦЕНТР ВМО В России



ВИРТУАЛЬНАЯ ЛАБОРАТОРИЯ  
ДИСТАНЦИОННОГО ОБУЧЕНИЯ  
СПУТНИКОВОЙ ГИДРОМЕТЕОРОЛОГИИ



Российский  
Государственный  
Гидрометеорологический  
Университет

Институт повышения  
квалификации  
руководящих работников  
и специалистов Росгидромета

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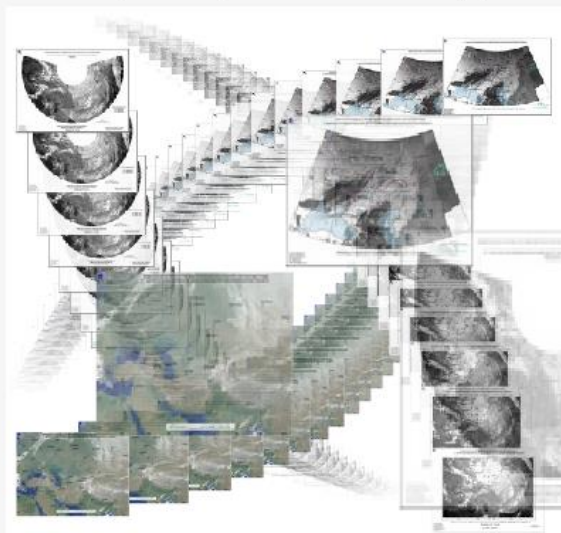
## Главная страница

- Метеорология
- Гидрология
- Океанология
- Средства измерения (спутники)
- Климатология
- Синоптическая метеорология
- Авиационная метеорология
- Агрометеорология
- Экология
- Энергетика
- Здоровоохранение
- Учебные модули COMET

Главная

## Главная страница сайта ВСЛ

Первый русскоязычный сайт дистанционного обучения по спутниковой гидрометеорологии, размещённый на ресурсах Росгидромета, преследует цель - донести до каждого заинтересованного лица последние достижения в области спутниковой метеорологии. Основные задачи виртуальной спутниковой лаборатории: повышение качества подготовки, переподготовки и повышения квалификации специалистов в области гидрометеорологии и смежных наук, обеспечение широкого доступа специалистов Росгидромета, аспирантов, студентов учебных заведений и специалистов других ведомств к методикам и технологиям обработки спутниковой информации, повышение эффективности использования материалов спутникового дистанционного зондирования Земли, выполнение международных обязательств Росгидромета.



- Пользователям
- Новые материалы на сайте
- Новости
- Архив спутниковых данных
- Модули ЮНЕСКО БИЛКО
- Гидрометеорологические словари
- Литература
- Электронные публикации
- Учебные планы и программы
- Список сайтов
- Тестирование (Moodle)
- Авторы
- Карта сайта

Москва

Сб, 06/01  
ночь: +1°C  
День: +5°C  
3, 5 м/с

Гидроцентр  
России

[Новый учебный модуль COMET по](#)

- [спутниковой метеорологии «Спутниковый Мониторинг Состав Атмосферы»](#)
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# Societal Benefit Areas (SBAs)

- Agriculture
- Biodiversity
- Climate
- Natural disasters
- Ecosystems
- Energy
- Health
- Water
- Weather





# THE STRUCTURE AND CONTENT OF THE SITE

## Right menu

- Measurement tools (satellites)
- Meteorology
- Synoptic meteorology
- Aviation meteorology
- Hydrology
- Oceanology
- Climatology
- Agrometeorology
- Ecology
- Energy
- Health
- Educational modules COMET

## Left menu

- Information for users
- New materials
- News
- Archive of satellite data
- UNESCO BILKO modules
- Hydrometeorological dictionaries
- Literature on topic
- Electronic publications
- Curricula and programs
- Links
- Tests (Moodle)
- Authors
- Site map

# TRAINING MODULES

## The competence centre

Space program WMO

From satellite pictures to information products

## The theory of satellite researches

The theory of the earth's satellite movement

Systems of space sounding of atmosphere

The main kinds of meteorological information from satellite

The cloudiness pictures' interpretation

Weather research based on space pictures

## Satellite sounding of mesoscale systems of atmosphere

Satellite methods of research of mesometeorological processes

Recognition convective circulation in space pictures of over

Mesoscale systems of cyclonic circulation according to meteo

Identification and the forecast of not frontal curls on satellite

The diagnosis orographical mesoscale systems under the satellite

Influence of a spreading surface on clouds distribution under

## Use of satellite pictures for the analysis and the forecast

The forecast of deposits on satellite pictures of overcast

An estimation of a direction and speed of a wind under the

The forecast of synoptic position on space pictures

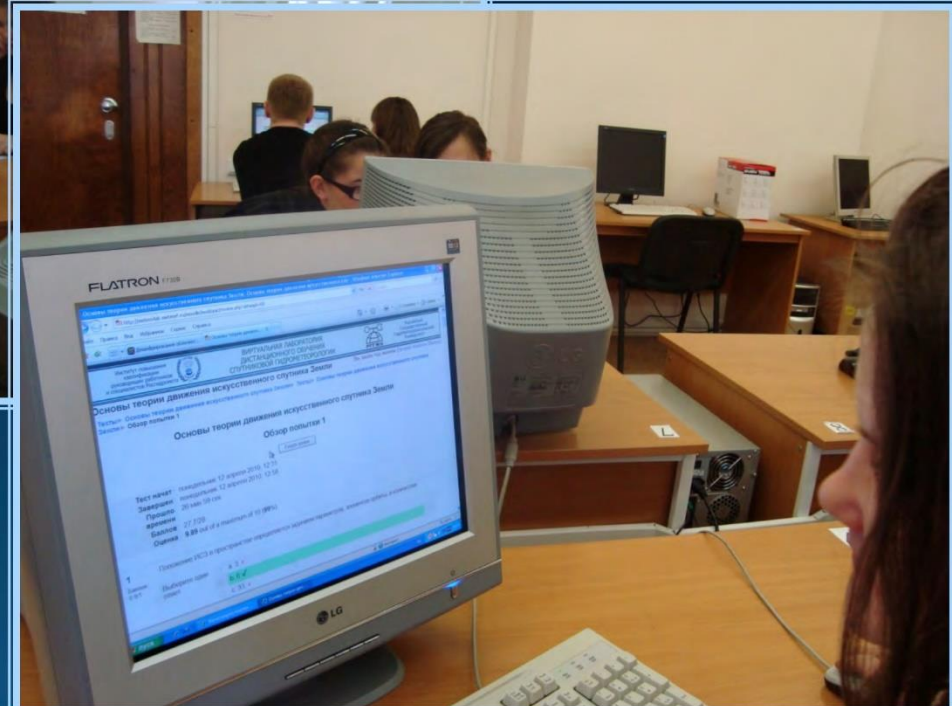
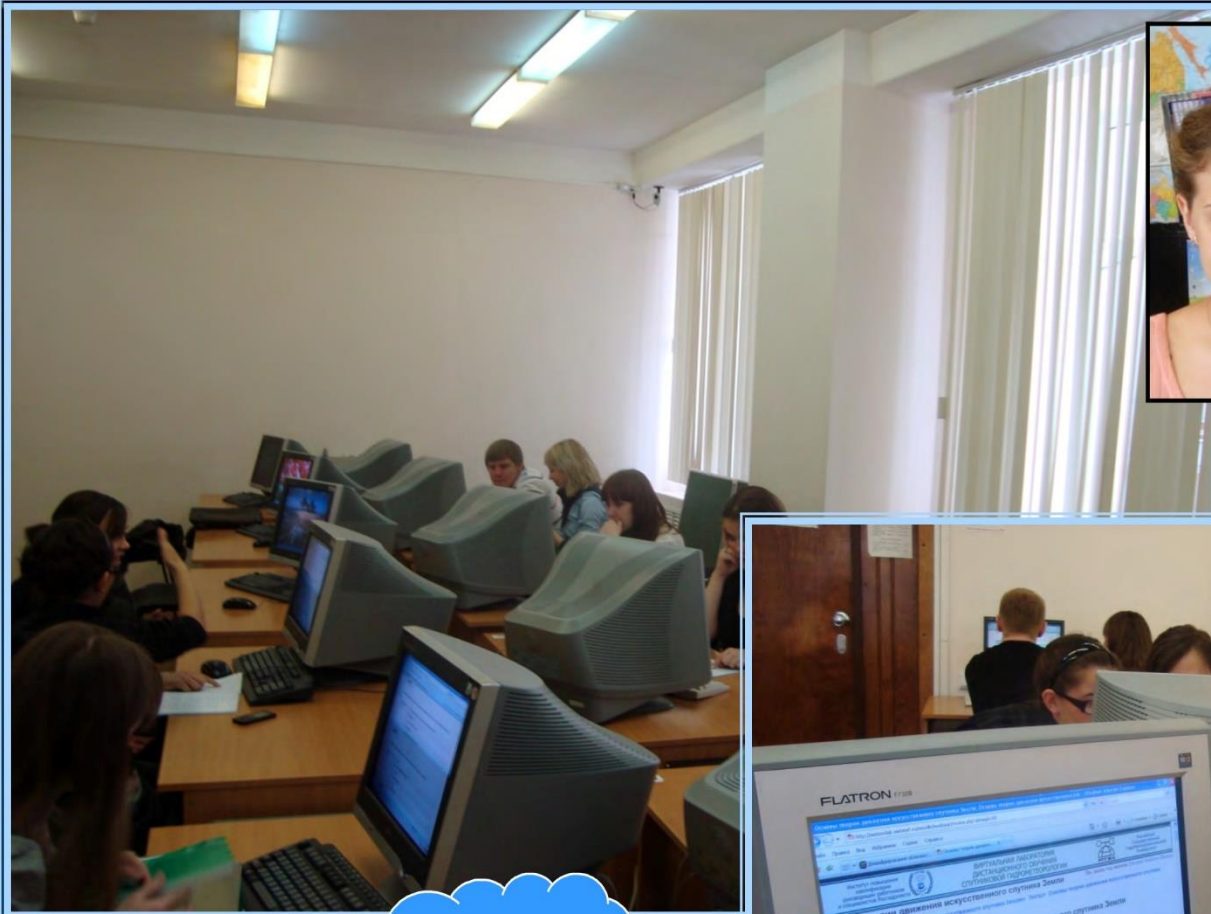


**85 online modules with 50 hours of instruction; 26 modules have associated tests**

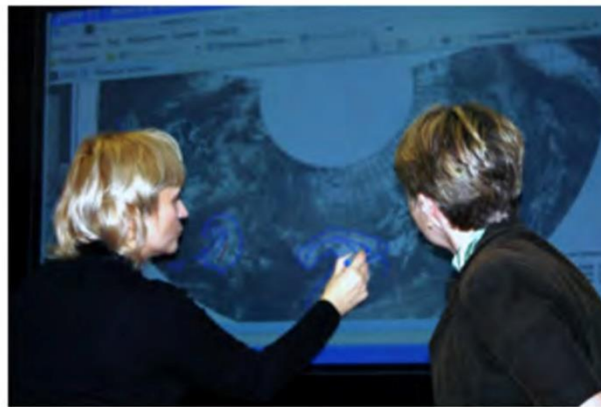
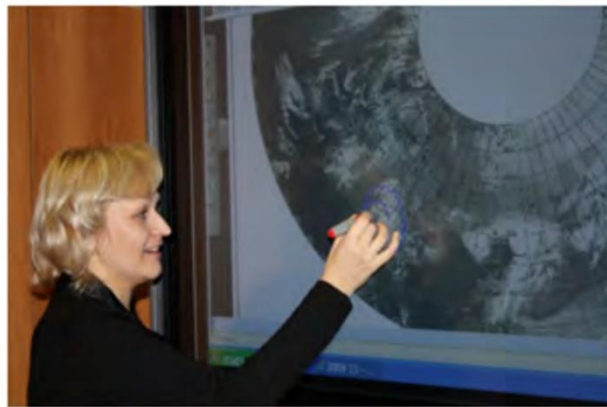


# SATELLITE METEOROLOGY LESSON

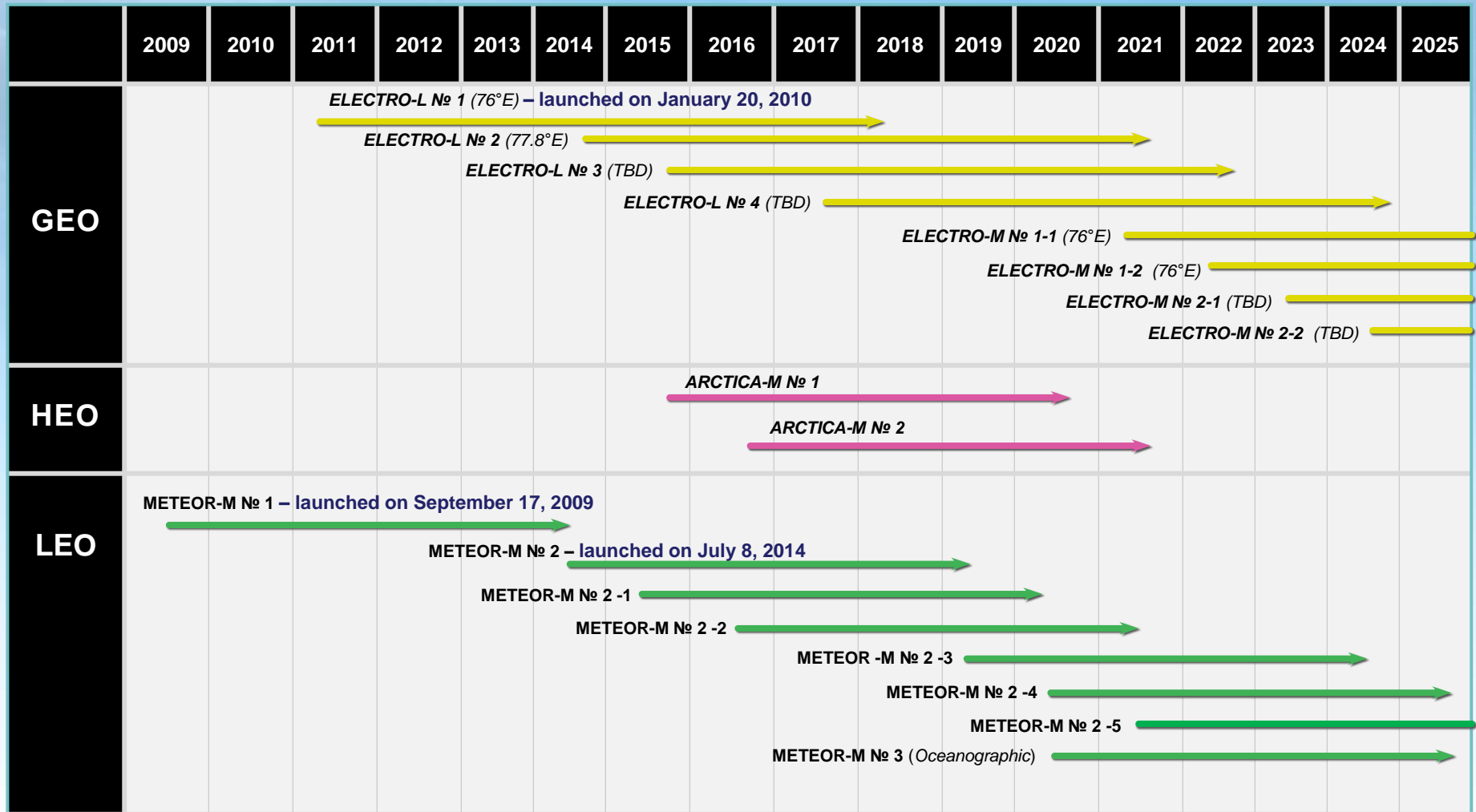
## USING VIRTUAL SATELLITE LABORATORY AT UNIVERSITIES



# VLAB FOR FACE-TO-FACE COURSES



# User needs: planning of Russian Meteorological Satellite System














# User needs: software for image processing

[http://www.lapismet.com/index.php?option=com\\_content&view=article&id=30&Itemid=48](http://www.lapismet.com/index.php?option=com_content&view=article&id=30&Itemid=48)

- GIS
- Image processing
- EUMETSAT

Free image processing software	Description
 <b>BILKO</b> <a href="http://www.noc.soton.ac.uk/bilko/">http://www.noc.soton.ac.uk/bilko/</a>	Bilko is a complete system for learning and teaching remote sensing image analysis skills. The integrated routines may be applied to the analysis of any image in an appropriate format, and include a wide range of standard image processing functions.
 <b>InterImage</b> <a href="http://www.lvc.ele.puc-rio.br/projects/interimage/">http://www.lvc.ele.puc-rio.br/projects/interimage/</a>	Open source object-based image analysis (OBIA) software for automatic image interpretation.
 <b>Orfeo Toolbox</b> <a href="http://www.orfeo-toolbox.org/otb/">http://www.orfeo-toolbox.org/otb/</a>	Orfeo Toolbox: developed by CNES of France, for object-based image analysis (OBIA). Easier to use in Linux.
 <b>OpenDragon</b> <a href="http://www.open-dragon.org/">http://www.open-dragon.org/</a>	Provides high-quality, commercial-grade, free remote sensing image processing software aimed at school and university users.
 <b>MultiSpec</b> <a href="https://engineering.purdue.edu/~biehl/MultiSpec/">https://engineering.purdue.edu/~biehl/MultiSpec/</a>	Developed at Purdue University USA, for analyzing multispectral and hyperspectral image data.
 <b>PANCROMA</b> <a href="http://www.pancroma.com/">http://www.pancroma.com/</a>	Multispectral analysis and satellite image processing utilities.
 <b>RAT</b> Radar Tools <a href="http://radartools.berlios.de/">http://radartools.berlios.de/</a>	RAT is a powerful open-source software tool for processing Synthetic Aperture Radar (SAR) remote sensing data.
 <b>MAP READY</b> <a href="http://www.asf.alaska.edu/downloads/software_tools">http://www.asf.alaska.edu/downloads/software_tools</a>	The MapReady Remote Sensing Tool Kit accepts level 1 detected SAR data, single look SAR data, and optical ASF data. It can terrain correct, geocode, apply polarimetric decompositions, and save to common imagery formats, including GeoTIFF. Includes an image viewer, metadata viewer, and a projection coordinate converter.
 <b>SPRING</b> Georeferenced Information Processing System <a href="http://www.dpi.inpe.br/spring/">http://www.dpi.inpe.br/spring/</a>	Georeferenced Information Processing System: a GIS and image processing system with an object-oriented data model which provides for the integration of raster and vector data. It is available in Portuguese, English and Spanish, via the Internet.





# <http://www.meted.ucar.edu/esrc/index.php>



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easy access to a wide range of useful information, education, and training  
about low-earth orbit and geostationary satellites from trusted sources.

[more info](#)

### Basic search

search

### Categorical search (click to expand / collapse)

### Guided keyword search (click to expand / collapse)



Институт повышения квалификации  
руководящих работников  
и специалистов Росгидромета

ВИРТУАЛЬНАЯ ЛАБОРАТОРИЯ  
ДИСТАНЦИОННОГО ОБУЧЕНИЯ  
СПУТНИКОВОЙ ГИДРОМЕТЕОРОЛОГИИ

Оценка условий погоды по космическим изображениям

Тесты > Оценка условий погоды по космическим изображениям > Тесты > Оценка условий погоды по космическим изображениям > Попытка 1

Оценка условий погоды по космическим изображениям - Попытка 1

1

Баллов: -/1

Холодным фронтам первого рода соответствуют облачные полосы, состоящие из:

Выберите один ответ.

☐ а. перистой облачности

☐ б. кучевообразной

☐ в. слоистообразной и перистой облачности

☐ г. тумана

Отправить

2

Баллов: -/1

На холодных фронтах 2-го рода приземная линия фронта располагается:

Выберите один ответ.

☐ а. вблизи тыловой части облачной полосы

☐ б. в центре

☐ в. на периферии облачной полосы

☐ г. ближе к переднему краю облачной полосы

Отправить

# Thank you for your attention!

podgaisky@rshu.ru