

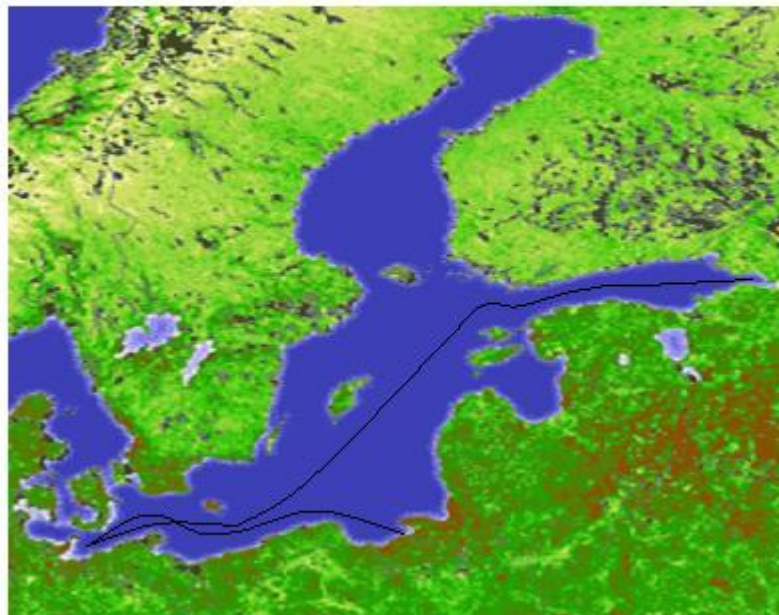
**Intergovernmental Oceanographic Commission  
Capacity Building Programme**

**Russian State Hydrometeorological University**



*Baltic Floating University Facility*

**14th International Training through Research Cruise (BFU-2006)  
onboard the research vessel  
*PROFESSOR SHTOCKMAN*  
(July, 11- July, 27 2006)**



**SUMMARY REPORT**

**St. Petersburg**

**2006**

In the summer of 2006 the Russian State Hydrometeorological University (RSHU) organized and convened yet another research cruise in the framework of the International «Baltic Floating University» (BFU) project. Besides the cruise, the project activity also involved cultural and educational programs in St. Petersburg and the city of Kaliningrad. For the first time the BFU research was conducted onboard the Kaliningrad-based research vessel *Professor Shtockman*, which belongs to the P.P. Shirshov Institute of Oceanology of the Russian Academy of Science (IORAS).. Participants were professors and researchers from the RSHU Faculty of Oceanology; specialists from IORAS; the State-owned company SEVMORGEO; Zoological Institute of the Russian Academy of Science; Moscow-based Vernadsky Geological Museum and Moscow State University, as well as undergraduate and postgraduate students from the RSHU Faculty of Oceanology other universities of Russia, Ukraine, Spain, Portugal and Guinea –Bissau. The list of participants includes 21 names (see Appendix 1), half of them were students.

## Objectives

Complex research in the Baltic Proper, the Gulf of Finland and on the Kaliningrad Shelf was held from July, 11 to July 27, 2006 in the framework of co-operation between RSHU and IORAS aiming at reaching the objectives of the Federal Programme the “Research of the World Ocean nature” sub-programme Training, Education and Mutual Assistance (TEMA) Program of IOC (of UNESCO); the RSHU contract with SEVMORGEO and some other programmes of the Russian Academy of Science and the Ministry of Education and Science of the Russian Federation.

The main research direction involved the assessment of conditions of the marine environment and biological communities, and the detection of environmentally vulnerable water areas. The cruise also provided new data for oceanographic databanks. This was done by transmitting data in real time to the RSHU website ([www.rshu.ru](http://www.rshu.ru)).

### **The research undertaken included:**

- collection and analysis of hydrophysical, hydrochemical and hydrobiological data, including the species composition and biomass of phytoplankton and benthos and the content of chlorophyll-a in the areas under study; as well as studies of:
- spatial variability of the hydrophysical characteristics on oceanographic stations and at the HELCOM monitoring stations;
- conditions of the formation of the water vertical stratification;

- spatial variability of the major hydrochemical characteristics such as the content of dissolved oxygen, the hydrogen ion exponent, alkalinity, labile organic matter, and the content of hydrogen sulfide in deep-sea areas;
- state of the near-bottom water pollution by dissolved oil products;
- geochemical structure of bottom sediments, the near-bottom oxidation-reduction conditions and hydrochemistry of the near-bottom waters in various parts of the Baltic Sea;
- sub-satellite experiments aimed at determining the calibration factors for the decipherment of satellite images;
- collection of data **for** the Federal Geological Environment Monitoring Network and specifically in view of the regional complex assessment of the current state of the environment of the Baltic Sea, including the Kaliningrad Shelf.

**The education and training** tasks of the expedition included:

- lectures and seminars on specific issues with the use of video and DVD materials (in English);
- training students in acquiring research skills at sea and in data preprocessing;
- scientific guidance in the preparation by the students of presentations of the cruise preliminary results;
- international mid-cruise seminar took place at the Leibniz Institute for the Baltic Sea Research (Warnemünde, Germany) on 17 July.

## Beginning the cruise

The first group of the cruise participants arrived in Kaliningrad on July 6, 2006 delivering to the vessel all research equipment required. Preparation of the laboratories for field research began. During their free time the students were able to see the beauties and monuments of Kaliningrad, admire the renovated and embellished Victory Square in the centre of the city and the newly built magnificent Church of the Christ the Savior, visit Russia's only Amber Museum (whose collection features one of the largest amber pieces weighing over 4 kg), as well as the historically famous Cathedral (the symbol of Kaliningrad), which is situated in the heart of the city on the Kneiphof island. Two rooms in the Cathedral Museum are devoted to the life of the great idealist philosopher Immanuel Kant (1724-1804) - the city's most famous former resident, whose tomb lies beside the Cathedral walls.



Figure 1 A group of international students in Kaliningrad near monument of Duke Albrecht founded Koenigsberg University - Albertina in 1544.

The cruise started from Kaliningrad on the hot summer day of July 11, 2006. Poland was the first country to be visited. During the stay in the Gdynia harbor the vessel was visited by two research officers from the local Meteorological Institute, Magdalena Kaminska and her colleague. The guests were shown the laboratories and the equipment. They also had a talk with the students, displayed a considerable interest in the student- and postgraduate-assisted research programme, discussed with the chief of the expedition T.R. Eremina the possibilities of the

enlargement of mutual cooperation and expressed their desire to take part in the future BFU cruises. The students were shown round the city of Gdynia.

On July, 12 the RV “*Prof. Shtockman*” left Gdynia for the planned research area on the Kaliningrad Shelf.

## **At sea**

Divided into five groups (on geology, chemistry, hydrology, biology, meteorology and data processing), the students worked in laboratories, attended seminars, participated in discussions of the preliminary results of the expedition. The students were also given lectures by Prof. Alexander Rybalko on sedimentation processes in the Baltic Sea and by Dr. Alexander Averkiev about the causes, mechanisms and forecasting of marine floods. Dr. Mikhail Shilin conducted for the students a course on “The Baltic Sea Environment” within the framework of the International Baltic University Programme (its Secretariat is based at Uppsala University, Sweden). Then the students passed successfully a written exam on the course and, on the completion of the expedition, received Diplomas of the International Baltic University Programme. The international students also attended the Russian language classes.

From July, 12 till July, 15 researches were conducted in the Bornholm Basin and the Arkona Basin, Baltic Sea. At the first stage 26 stations were made, mostly in the deep Bornholm Basin, involving the monitoring of the World War II chemical weapon disposal sites. On the completion of this work the vessel headed for the port of Warnemünde, Germany.

### ***BFU Mid-Cruise seminar***

On July, 17 during the stay in Warnemünde, a seminar was held in the premises of the Leibniz Institute for the Baltic Sea Research (IBSR). At the seminar the students, as well as the RSHU specialists presented their research results. Dr Barbara Hentzsch (responsible for public relations and science management at the Institute) told the guests about the institute and its major scientific activities. Dr. Hans Burchart gave a lecture on some results of his studies by means of mathematical and laboratory modeling regarding the presence of the North Sea water emissions in the Baltic Sea and their further dissemination. The mechanism of the dissemination of the North Sea waters into the Baltic Sea was demonstrated with the use of a model of the bottom contour along the axis of the Sea filled with water of varying density. This helped to demonstrate vividly how the water from the North Sea reaches the Baltic Sea and fills its deep-sea basins. This lecture, accompanied by the modeling experiments, highly interested the students who asked Dr. Hans Burchart many questions. The lecture was very instructive for the students since

it demonstrated vividly one of the most important mechanisms of the formation of the structure of the Baltic Sea water masses. In total, nine presentations were made at the seminar (see the programme in Appendix 2).

The visit of the BFU team to Warnemünde raised vivid interest of the mass media. Anna Neuzling, a journalist for the Baltic Newspaper, met with the members of the team and published her article with the interview the following day (Appendix 3). In this article entitled «The University Floats Homebound» she wrote briefly about the RSHU-led Baltic Floating University Programme, the research cruise of the students from Russia, France, Portugal, Spain and Guinea-Bissau onboard the R/V *Professor Shtockman* and about the scientific seminar that was held in IBSR.

Dr Barbara Henzsch and the cruise Chief Scientist Dr T. Eremina talked, in a comparative manner, about the IBSR and RSHU summer field research programmes. The BFU students E. Kochetkova, Laginha Pereira da Silva and Raquel Lopez spoke about their impressions from the first part of the cruise and stressed full mutual understanding that exist on board among the participants. The author of the article made positive assessment of the potential for sea research in the Baltic region referring to the development of the oil sector and the seaside tourism in the Baltic States and primarily in Russia. This interview with the BFU lecturers and students allowed making comparative analysis of the problems in the coastal zones of East Germany and Leningrad region, Russian Federation, respectively.

The students visited the city of Rostock with its famous university and could fully admire the old German architecture.

After the three-day stay in one of Germany's best resort cities the *Shtockman* sailed off to conduct further research in the central part of the Baltic Sea and in the Gulf of Finland.

The weather favored the cruise and on July, 27 with all research and educational tasks fulfilled, the *Shtockman* reached St. Petersburg, and the cruise successfully terminated.

## Research results

Total duration of the cruise was 17 days. Position of oceanographic stations is shown on Figure 2. A total of 96 complex oceanographic stations were taken during the time of the field work. Below are the main scientific results followed by conclusions.



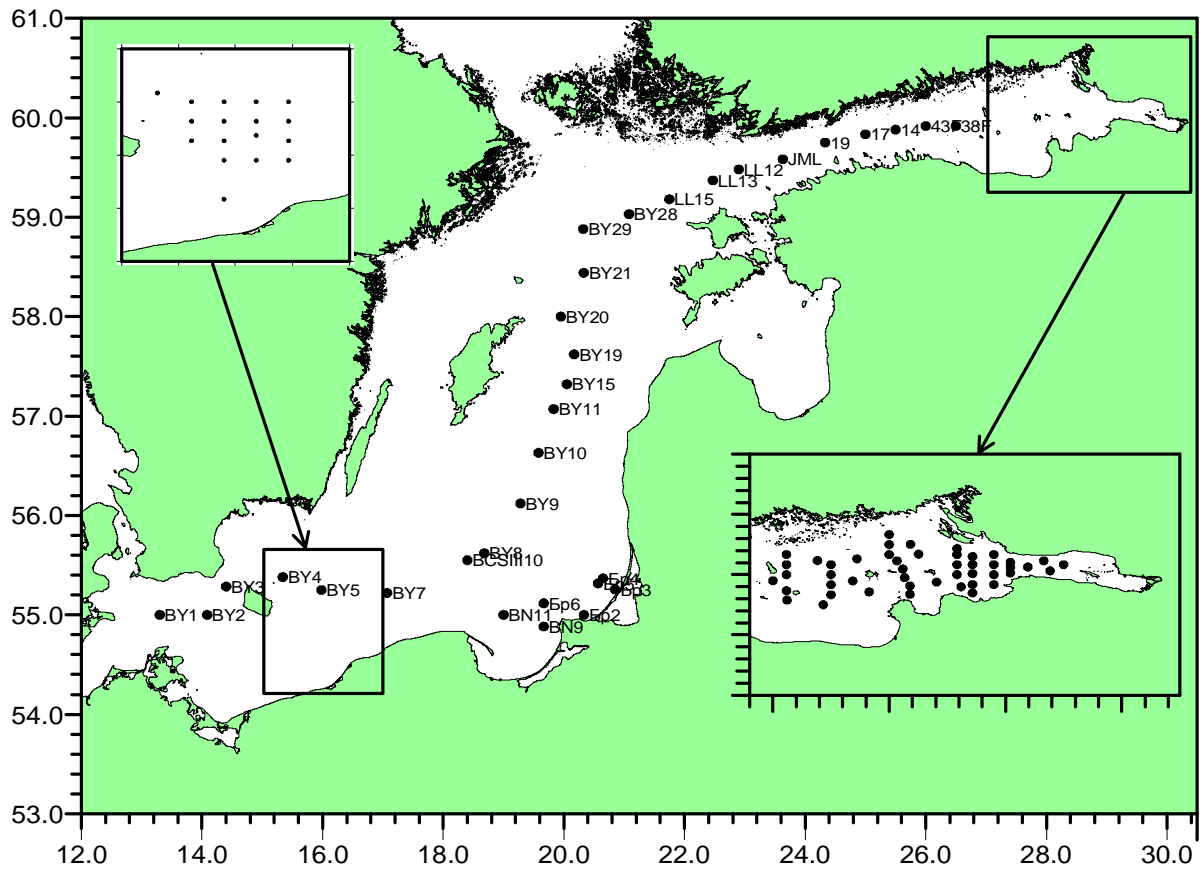


Figure 2. Oceanographic stations made in July 2006

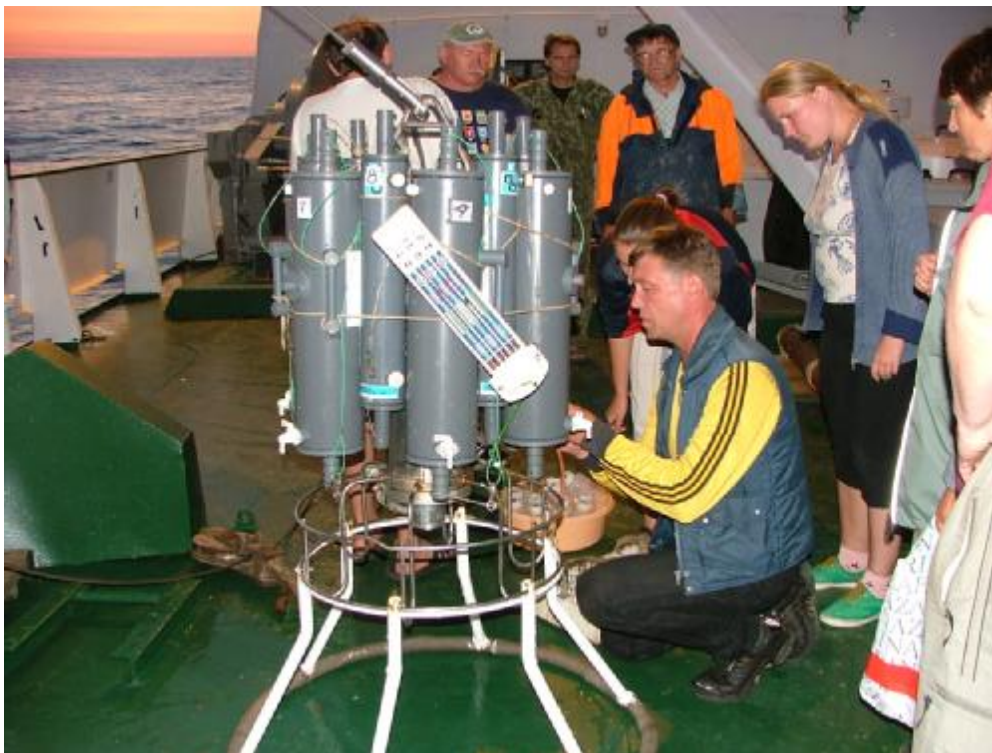


Figure 3. As the means to obtain hydrophysical data (T,S,P) applied technique in operation CTD MARK III Rosetta - Niskin Sampling Bottles was used, helping to conduct the observation of temperature and salinity, along with taking samples for hydrochemical analysis (students and scientists working with the CTD probe)

## **Hydrology**

### *Water masses*

Fields of temperature and salinity in the southern Baltic Sea in July 2006 were insignificantly different from the mean long-term conditions. The elements of the two-ply thermal structure of the Baltic Sea were expressed fairly well. The main difference from the mean conditions observed was that the temperature of the upper layer was 3-4°C higher than its mean long-term value. This is a clear consequence of hot ten-day period at the end of June and the beginning of July over the central Europe, Kaliningrad region and southern Baltic Sea.

A distinctive feature of vertical temperature profiles in this part of the Sea is their irregularity at depths of 45 to 80 m, as observed in previous years. This irregularity is a consequence of intrusions of small volumes of the North Sea waters, which occur constantly and do not influence the thermohaline structure of more remote areas of the Baltic Sea, unlike major inflows back in 2003.

The salinity distribution on the same profiles makes it clear to observe the North Sea waters inflow into the Arkon deep, and further spreading of transforming waters along water deeps with overflow over the sills. At the same time, the layer homogenous by salinity (8 ‰) rises up from the depth of 65 m in the vicinity of st. BCSIII10 till 25 m at the st. BY1. Accordingly, the halocline rises up westwards. Decrease of the CT thickness marked at the temperature profile and the rise-up of CIL (“winter waters”) corresponds to the rise-up of the halocline moving from the Slupsk Furrow to the Arkon deep. Relatively high values of salinity in near-bottom layers of the Arkon (19-20‰) and Bornholm (16‰) deeps witness of inflows of low (type I) and medium (type II) intensity, according to the Grasshoff classification, which occurred in 2006. The probability of medium intensity inflows is also confirmed by the fact that intrusions on temperature profiles are observed up to the depths of 80-85m, i.e. the North Sea waters penetrate almost until the bottom of the Bornholm deep. Inflows of low intensity (type I) form mixed waters with relatively lower density “slide” on more dense layers lying below, not penetrating deeper than 50-55 m.

In general thermohaline structure of waters in the central Baltic Sea in July 2006 corresponds to the climatic average.

## **Hydrochemistry**

On the axial section through the Bornholm and Arkon deeps in the southern Baltic Sea the vertical structure is characterized by the presence of subsurface dissolved oxygen maximum



(with concentrations up to 8.5 ml/l) in the field deposition of thermocline in the Arkon basin and increase of dissolved oxygen content in CIL, borders of which are clearly observed from st. BY8 to st. BY4 and diffused, as previously stated, in the Arkon basin. Oxygen deficiency and its full substitution by hydrogen sulfide were marked in the Bornholm deep at depths of 80 m and lower.

Surface water layers are poor in phosphates and nitrates all along the section as a result of their consumption by phytoplankton. At several stations - BY7, BH12 and BH13 – phosphates were completely consumed in the photic layer, the absence of nitrites was marked basically in the whole water mass from the southeast area of the Gotland basin to the Slupsk Sill. Low nitrate concentrations were fixed in the same area, namely in the surface-to-halocline layer. Phosphate concentrations maxima and nitrate minima are conditional on the shift of oxidation-reduction conditions at the bottom and the release of phosphates from bottom sediments connected with it and restoration nitrates to molecular Nitrogen. It is remarkable that the regime of biogenic elements in the Bornholm basin is influenced by complex hydrodynamic conditions emerging as a result of the water inflow from the shallow Arkon basin, and also a mixing of waters of different chemical compositions that makes a complex picture of hydrochemical features vertical distribution.



*Figure 4. Students Manuela Ramos (Spain) and Barri Ica with (Guinea-Bissau) with Dr. Tatjana Eremina making oxygen fixation in water samples*

The observations conducted on the axial section of the Baltic Sea in 2006 let us to obtain data on spatial distribution of main hydrochemical features of sea waters composition and properties.

Vertical water structure at the central Baltic section was typical for the summer season. According to the dissolved oxygen content variability it is possible to determine 3 layers: upper quasihomogenous, intermediate and near-bottom. The upper water layer (0-20 meters) is saturated with oxygen by 100%-107%. In the intermediate layer (20-60 meters) of the central Baltic an oxygen maximum is observed, which is characterized by water saturation by over 80%.

Down from 50 meters a sharp oxygen concentration reduction occurs. Starting from 80 meters oxygen is nearly absent, and features of hydrogen sulfide presence in water appear.



Comparing to observations made in 2005 there has been expansion area with anaerobic conditions in the near-bottom layers of the Baltic Sea. Vertical distribution of phosphates is characterized by their growth in concentration in thermocline and their accumulation in the near-bottom layers all along the section. As for the distribution of nitrates, their maximal concentrations prevail in the layer 75-100 m of the Gotland basin, below that a decrease in concentrations in oxygen deficiency layer till the minimal values in anaerobic environment of the near-bottom layers of the Gotland deep occur. Nitrites concentration in the whole layer from the surface to the bottom corresponds to minimal summer values.

*Figure 5. Marta Castillo Sancho (Spain) in the chemical laboratory.*

Significant gradient of vertical nitrites distribution is not observed. In the western Gulf of Finland the pattern of hydrochemical features vertical distribution stays similar to that observed on HELCOM section in the central and northern Baltic Sea. In the eastern part of the Gulf, moving onwards to shallow areas, fresh water discharge from the Neva starts influencing the distribution, which is clearly observed by alkalinity values that increases westwards, nitrite and nitrate concentrations that tend to decrease westwards, and by higher phosphate concentrations in surface waters.

## **Hydrobiology**

The majority of the visited Baltic Sea areas are characterized by low values of plankton primary production. The areas with high productivity, where photosynthesis speed reaches optimal

conditions ( $A_{opt.}$ ) was 0,2-0,3 g C/m<sup>3</sup> per day, were situated on the shallow Kaliningrad polygon and in the eastern part of the Gulf of Finland. In the open sea  $A_{opt.}$ , as a rule, did not exceed 0,1 g C/m<sup>3</sup> per day. The only exception is a local part in the vicinity of the Bornholm deep (stations BY4 и BY5), where  $A_{opt.}$  reached up to 0,3-0,4 g C/m<sup>3</sup> per day. In the Gulf of Finland a tendency for the photosynthesis speed to increase eastwards was observed, which is mostly expressed at the apex of the Gulf. The maximal  $A_{opt.}$  value (2,15 g C/m<sup>2</sup> per day) was registered in the Bornholm basin at st. BY4. Relatively high primary production values (around 1gr C/m<sup>2</sup> per day) were also observed in the eastern Gulf of Finland and on station. of the Kaliningrad polygon. Other areas of the Gulf of Finland, except for st. BY 11, are characterized by low values (0.2-0.7 g C/m<sup>2</sup> per day). The obtained primary production values basically coincide with those obtained by us in 2005.

Macrozoobenthos was very poor or was totally absent on the most part of the examined water areas. Dense benthic animal settlements were marked only on poorly silt soils (sands, Fe-Mn concretions), situated mostly in shallow areas (Kaliningrad polygon and eastern part of the Gulf of Finland). In the Gulf of Finland's areas of rich benthic fauna a noticeable role in benthos is played by alien species, introduced during the last decade or so.

## Geoecology



Figure 6. Prof. A. Rybalko (Russia) and Barri Ica (Guinea-Bissau) working with the Niemisto piston corer

The results of geoecological research made it possible to state that general ecological deterioration is observed in the examined areas in 2006, which is connected, in the first place, to oxygen deficiency in near-bottom water layer.

It is especially noticeable on the example of the Gulf of Finland. As the result, not only did the areas with anaerobic conditions go up in size, but also the negative redox-potential value increased.

The network of observation on the Kaliningrad shelf in the vicinity of

the Kravtsovskoe oilfield was significantly expanded. Preliminary data show that the geological environment is relatively slightly exposed to alterations influenced by technogenic factors. The main negative factor is navigation, and this fact is confirmed by parameters measured near the port of Zelenogradsk. The absence of natural aeration in the Bornholm deposit site may lead to water quality deterioration as a result of the infiltration of toxic substances from bottom sediments. In the eastern Gulf of Finland near to the Neva estuary a general deterioration of the environmental situation is observed, which is indirectly confirmed by reduction of Eh values.

#### **After the cruise:**

##### **Post cruise cultural-scientific program in St. Petersburg**

On the completion of the research cruise the work with the students still continued. The RSHU organized for the students a number of lectures, as well as visits to several of St. Petersburg's Research Institutes where the students met with ecologists, oceanographers and other specialists. The students could also enjoy a cultural program and tours round St. Petersburg and its suburbs with active participation of the RSHU undergraduate and post-graduate students. The list of post-cruise activities is given in Appendix 4.

#### **Conclusions**

Unlike standard shipboard training operations, BFU seeks to achieve more effective training of students and young researchers through their participation in multi-disciplinary research programs. The Baltic Floating University has been established to train young generation of researchers in collecting and analyzing hydro-meteorological and environmental data and in view of promoting regional and inter-regional cooperation between universities that teach marine science and integrated coastal management. Within BFU, close collaboration has been established with a number of universities in Europe that regularly send their students to the BFU cruises. These are universities of Aveiro (Portugal), Cadiz (Spain), Rostock (Germany) (like was the case in 2006), Plymouth (United Kingdom), Uppsala (Sweden), Riga (Latvia), Klaipeda (Lithuania). Many other universities, in particular from countries of the Baltic Region, share with the BFU students their knowledge and experiences during mid-cruise workshops like was the case in Warnemunde. Among them are universities and research centres of Gdansk (Poland), Stockholm (Sweden), Helsinki (Finland). Students from countries of Africa and Asia who come to RSHU to be trained in hydro-meteorology also participate in the BFU cruises. The BFU-2006 cruise has contributed to the research and capacity building objectives in marine and environmental sciences established by UNESCO/IOC, HELCOM and other international and national programs.

## Appendix 1.

### List of participants in the BFU-2006 cruise

	<b>Name</b>	<b>Country</b>	<b>Institution</b>	<b>Position</b>
1	Aleksandrova Lidia	Russia	RSHU	engineer
2	Averkiev Alexander	Russia	RSHU	Dr, Deputy Head of the expedition
3	Barri Iça	Guinea-Bissau	University of Aveiro, Portugal	Student
4	Castillo Sancho Marta	Spain	University of Cadiz, Spain	Student
5	Eremina Tatyana	Russia	RSHU	Dr, Head of the expedition
6	Fanguero Ramos Manuela	Portugal	University of Aveiro, Portugal	Student
7	Fedorova Natalia	Russia	Sevmorgeo	Dr, geologist
8	Gustoev Dmitry	Russia	RSHU	Dr, hydrologist
9	Isaev Alexey	Russia	RSHU	Hydrologist
10	Kochetkova Ekaterina	Russia	RSHU	Student
11	Lopez Gonzalez Raquel	Spain	University of Cadiz, Spain	Student
12	Laginha Pereira da Silva Patrícia Isabel	Portugal	University of Algarve, Portugal	Student
13	Rybalko Alexander	Russia	Sevmorgeo	Dr.Prof., geologist
14	Rusina Larisa	Russia	RSHU	Chemist
15	Scherbakov Jury	Russia	RSHU	Hydrologist
16	Sofyina Ekaterina	Russia	RSHU	PhD student
17	Strady Emilie	France	(IBSR).	Student
18	Shilin Mikhail	Russia	RSHU	Dr, biologist
19	Tkachenko Nikolay	Russia	RSHU	PhD student
20	Vilenkin Sergey	Russia	RSHU	Data manager

**PROGRAMME**  
of the mid-cruise BFU seminar  
Warnemunde, Rostock, Mecklenburg-Vorpommern,  
July 17, 2006

	Opening ceremony
Dr. Barbara Henzsch, Germany	Greetings from the Institute
Dr. Hans Burchart, Germany	Lection and modeling demonstration on the research of the emission water from the North Sea to the Baltic Sea
Dr. Tatyana Eremina, Dr. Mickhal Shilin RSHU, St. Petersburg.	“Baltic Floating University research cruises in the Baltic Sea”
Dr. Alexander Rybalko, State Company SEVMORGEО, St. Petersburg.	“Federal monitoring of the Baltic Sea and the BFU Project”
Katya Kochetkova, RSHU, St. Petersburg.	“Preliminary Results of the Hydrochemical Investigations of the BFU-2006 Cruise”
Patricia Isabel Laginha Pereira da Silva, Marine and Environmental Science Faculty, Algarve University, Portugal.	“Preliminary Results of the Hydrophysical Investigations of the BFU-2006 Cruise”
Marta Castillo Sancho, Faculty of Marine and Environmental Science, University of Cadiz, Spain	“Organic Contamination in the Gulf of Cadiz, Spain, in Relation to Shipping”
Raquel Lopez Gonzalez, Faculty of Marine and Environmental Science, University of Cadiz, Spain	. “Potential Risk of Tsunami in the Gulf of Cadiz, Spain”
Patricia Isabel Laginha Pereira da Silva, Marine and Environmental Science Faculty, Algarve University, Portugal.	“Marine and Continental Influence in Sediments near the Guadiana Estuary (SE of Algarve, Portugal)”
Barri Ica, Aveiro University, Portugal	“Fisheries of Tunas and Tunalike Fishes along of the Atlantic Coast of Africa”
Manuela Fangueiro Ramos, Aveiro University (Portugal) and Sevilha University (Spain).	“Deep Sea Fauna of Anemones ( <i>Anthozoa: Actiniaria</i> ) of the Northeast Atlantic Abyssal Benthos”
Press-conference	
Interview for the Baltic Newspaper	





### 59-Jähriger erkrankt vor Warnemünde

Warnemünde. Den ersten Badelotus in diesem Jahr hat Warnemünde zu bekriegen. Am Sonntagabend gegen 16 Uhr gingen drei Männer in Höhe des Rettungsturms I baden. Einer vertiefte das Wasser, die anderen beiden trieben später etwa 50 bis 60 Meter vom Strand entfernt im Wasser. Als die Rettungsschwimmer den ersten Schwimmer vergeblich versuchen widerzubeleben, musste auch der andere Schwimmer geborgen und reanimiert werden. Der Notarzt stellte bei dem 59-jährigen Bektiner den Tod fest. Die Obduktion ist beantragt. Der andere Mann wurde bewusstlos in ein Krankenbait eingeliebert. Bereits am vergangenen Mittwoch haben Rettungsschwimmer eine ältere Frau aus dem Wasser gezogen und erfolgreich reanimiert. Sie konnte inzwischen auf die Normalstation verlegt werden. Im vorigen Jahr starben in Warnemünde drei Badegäste. LF

# Raumfahrtzentrum zieht ins Wohnheim

Endlich gibt es Klarheit über die Nutzung des leeren Achtgeschossers an der Stadtautobahn: Ein Luft- und Raumfahrtzentrum entsteht.

Von THOMAS STERNBERG

Warnemünde. Es gibt Immobilien, die sind über Jahre ein Ärgnis. So auch das frühere Studentenwohnheim an der Stadtautobahn am Warnemünder Ostseegang. Das ehemalige Gebäude ärgert wegen seines rüchösen Zustandes seit vielen Jahren die Firmen aus dem benachbarten Technologiepark (TPW) und natürlich die Warnemünder. Dabei gab es 2001 sogar schon einmal eine Baugenehmigung. Doch jetzt wird endlich Ernst gemacht. Das Gebäude wurde verkauft. Es gehört seit wenigen Tagen der Treuhand Liegenschaftsgesellschaft (TLG) in Mecklenburg-Vorpommern. Die TLG baut nun an der exponierten Lage das „Warnemünder Zentrum für Luft- und Raumfahrt“. Hauptmieter wird das Rostocker Luft- und Raumfahrtunternehmen EADS-RST sein.

Die Firma RST (Rostock System Technik) hat unter anderem die Klimaanlage für den Airbus 330 entwickelt und mit ihrer Entwicklung der „elektronischen Nase“, ein Sensorsystem zur Früherkennung von Bränden, auf sich aufmerksam gemacht. Seit vielen Jahren ist RST ein Tochterunternehmen des größten europäischen Luft- und Raumfahrtkonzerns EADS (European Aeronautics Defence and Space). Jetzt wird der Umzug in das TLG-Haus geplant.

„Wir sind ein normales Immobilienunternehmen, das in Rostock schon mehrere anspruchsvolle Projekte realisiert hat, das geplante Warnemünder Luft- und Raumfahrtzentrum passt gut zu unserem Unternehmensprofil“, erklärt Stefan Marske von der Rostocker TLG-Niederlassung.

Das Zentrum für Luft- und Raumfahrt wird Bestandteil des Warnemünder Technologieparkes sein. „Ich habe mich sehr gefreut, dass wir mit im Boot sind, und so weiter am Warnemünder Standort unser Profil schärfen können“, sagte gestern der Geschäftsführer des TPW, Petra Ludwig. Entstanden wird das erste Raumfahrtzentrum in Mecklenburg-Vorpommern. Das bereits im TPW ansässige Unternehmen EADS-RST zieht in das dann umgebaute Gebäude, belegt dort mehrere Etagen. „Unser Ziel ist neben dem Hauptmieter weitere Luft- und Raumfahrtunternehmen in dem Zentrum anzusiedeln“, unterstreicht Petra Ludwig. Für die frei werdenden Räume des jetzigen RST-Firmensitzes gebe es bereits erste Interessenten. Ursprünglich sollte in dem Studentenwohnheim ein überregionales und interdisziplinäres Kompetenzzentrum entstehen. Der Rostocker Unternehmer Wolfgang Pieper übernahm 1999 das Haus und wollte dort das „Hanseatic Trade Center“ mit bis zu 20 Firmen ansiedeln. Weil Arbeitsplätze versprochen wurden, verzichtete die Stadt auf eine Ausschreibung und bot einen kühlen Kaufpreis an. Doch alle Hände scheiterten. 2003 wollte der Investor dann Wohnungen bauen. Die Stadt erklärte wegen der Nutzungsänderung den alten Vertrag für nichtig. Ein Rechtsstreit schloss sich an. Seit Frühjahr 2006 befindet sich die Immobilie wieder im städtischen Besitz. Ein neuer Investor wurde gesucht und mit der TLG gefunden. Vergangenen Freitag wurden die Verträge unterschrieben. Die bauausführende Firma wird Warnemünde Bau sein. Im April hat die Baufirma bereits Bäume und Büsche gepflanzt, um Baufreiheit für den Ausbau des Gebäudekomplexes zu schaffen. Das achtgeschossige Wohnhaus in der Friedrich-Bamewitz-Straße wurde Anfang der 70er-Jahre als Studentenwohnheim für die Seefahrts-Hochschule gebaut. Es verfügt über eine Einflughochschiff-Fläche von 7000 Quadratmetern.



Die TLG ist Investor und Bauherr für das Warnemünder Raumfahrtzentrum, das zum Technologiepark gehören wird. Noch in diesem Jahr soll für den Gebäudekomplex an der Stadtautobahn Baubeginn sein. OZ-Foto: Thomas Sternberg

Appendix 3.



Das Team aus Wissenschaftlern und Studenten vor dem russischen Forschungsschiff: Patricia Laginha Silva, Dr. Tatjana Eremina, Dr. Mikhail Shilin, Katja Kochetkova, Dr. Alexander Averkiev, Raquel Lopez und Ica Bari (v. l.). Foto: Anja Neutzling

## Uni schwimmt heimwärts

Warnemünde. Fast unbemerkt lag seit Sonntag früh die „Professor Shokman“ am Ende des Passagierkais, sodass man im Schatten der großen Kreuzliner. Gestern Abend verließ das russische Forschungsschiff Warnemünde und machte sich auf den Rückweg nach St. Petersburg.

„Im Sommer sind wir für einige Wochen eine schwimmende Universität“, berichtet Dr. Tatjana Eremina, Leiterin der Expedition, an der Studenten aus Russland, Portugal und Spanien teilnehmen. Sie alle wollen Meereswissenschaftler werden.

„An Bord lernen sie die praktischen Grundlagen der Meeresforschung“, sagt der Biologe Dr. Mikhail Shilin. Dazu gehören Wasserproben zu entnehmen und im Labor zu analysieren oder Sedimentkerne aus dem Meeresboden zu ziehen. Es gebe aber auch Vorlesungen und Seminare zur Ostsee, ihrer Geschichte und den aktuellen Problemen dieses sensiblen Ökosystems.

In Warnemünde statteten die gestandenen und angehenden Meereswissenschaftler dem Leibniz-Institut für Ostseeforschung (IOW) mehr als einen Besuch ab, um Vorträge zu hören und die modernen Labore zu besichtigen.

„Unsere Studenten machen regelmäßig Praktikum auf der „Professor Albrecht Penck“. Hin und wieder gelingt es, die Termine so abzustimmen, dass dann auch schwedische Studenten an Bord sind“, berichtet Dr. Barbara Heintzsch, IOW-Pressesprecherin.

Katja aus Russland, Raquel aus Spanien und Patricia aus Portugal genießen die gemeinsame Ostsee-Expedition. „Wir sprechen alle gut Englisch, da gibt es keine Verständigungsprobleme“, erzählt Katja (19). Man habe Rostock und Warnemünde erkundet. „Mich hat die Kirchen-Architektur fasziniert“, sagt Patricia.

Dr. Shilin hat die unmittelbare Küste genau unter die Lupe genom-

men. „Einfach toll, wie man den vielen Touristen hier gerecht wird, Park- und Müllprobleme löst“, urteilt der Meeresbiologe aus St. Petersburg. In seiner Heimat sei diesbezüglich noch viel zu tun. Stunden müsse man im Stau verbringen, bevor man an den Strand gelange. Parkplätze seien Mangelware. „Beeindruckt bin ich von der Schönheit der Strände hier“, so Shilin, der genau wie die Studenten auch ein Bad in der Ostsee nahm.

Den Meereswissenschaften in ihrer Heimat sagen die Forscher von der Russischen Staatlichen Hydro-meteorologischen Universität, unter deren Federführung die „schwimmende Uni“ auf der Ostsee unterwegs ist, in den kommenden 30 Jahren eine rasante Entwicklung voraus. Ursache seien die Hände zur Förderung der Öl- und Gasvorkommen und zum Verlegen von Leitungen nach Deutschland und Finnland zum Beispiel. ANJA NEUTZLING

**Program & schedule of post-cruise activities (lectures and visits)**

organized by RSHU for the BFU students

St.-Petersburg, July, 28 – August, 7 2006

	<b>Activity and time-table</b>	<b>Lections &amp; Responsibility</b>
28 July	Registration in the city Visits and work at the RSHU Computer Centre	
29 July	Petergoff Fontains and Palaces, ecological excursion. Cultural program: concert at the Jazz Philharmonic	RSHU students
30 July	Sightseeing in the city of St. Petersburg Cultural Program: Celebration of the Russian Navy Day. The Naval Parade and Fireworks on the Neva River	RSHU students
31 July Monday	Visit to Geological State Company SEVMORGEO and lunch for students. Introduction to the unique collection of the Geological Museum.	Prof. Alexander Rybalko, Dr. Natalia Fedorova Lecture in the Geological Museum
1 August Tuesday	11.30 Lecture 1 12.30-13.30 - lunch 13.30 Lecture 2 Visit and work at the RSHU Computer Centre	Lecture 1 Dr. Alexander Averkiev “Floods in St.-Petersburg: Causes, Mechanisms and Forecasting” Lecture 2 Dr. Roman Vankevich Processing of Collected Data”
2 August Wednesday	Visit to the Zoological Museum with Dr. Michail Shilin, lecture Meeting with scientists from the Zoological Institute of Russian Academy of Science	Dr. Michail Shilin, lecture and meeting with scientists from the Zoological Institute of Russian Academy of Science
3 August Thursday	Time 11.30 Lecture 1 Lunch 12.30–13.30 13.30 Lecture 2  Visit and work in the RSHU Computer Centre	Lecture 1 Prof. Alexey Nekrasov “Coastal Upwellings as Natural Phenomena and Their Influence on the Ecological State of the Coastal Waters” Lecture 2 Dr. Vitaly Sychev “Satellite Information for the Coastal Zone Research”
4 August, Friday	Sightseeing in the city of St. Petersburg Hermitage Museum, Russian Museum	
5 August –7August	Departure of students	

**Acronims**

BFU	Baltic Floating University»
HELCOM	Helsinki Commission
IBSR	Institute for the Baltic Sea Research
IOC	International Oceanographic Commission
IORAS	Institute of Oceanology of the Russian Academy of Science
RSHU	Russian State Hydrometeorological University
R/V	Research Vessel
TEMA	Training, Education and Mutual Assistance