IPY Summer Institute
“Environmental Studies in the Boreal Forest Zone”

July 16 - 28, 2007
Central Biosphere Forest Reserve
Fedorovskoe, RUSSIA
Organizers:
International Arctic Research Center, University of Alaska Fairbanks, USA
A.N. Severtsov Institute for Ecology and Evolution, Moscow, RUSSIA
National Biosphere Forest Reserve, Fedorovskoe, Tver’ Region, RUSSIA

Funding Agencies/Institutions:
National Science Foundation (NSF), USA
National Aeronautic and Space Administration (NASA), USA
Russian Foundation for Basic Research, RUSSIA
GLOBE, USA
National Institute for Environmental Studies, JAPAN
University of Maryland, USA
“Transparent World”, Moscow, RUSSIA
University of Alaska Fairbanks, USA
International Polar Year
July 14, 2007

Dear Participants:

I would like to take this opportunity to welcome you to the 2007 IPY Summer Institute for graduate students/early career scientists and K-12 teachers. This Summer Institute is sponsored by several institutions including the International Arctic Research Center (IARC) at the University of Alaska Fairbanks, Alaska (UAF), the A.N. Severtsov Institute for Ecology and Evolution of the Russian Academy of Sciences in Moscow, Russia, and the Central Forest State Nature Biosphere Reserve in Fedorovskoe, Russia.

A special thank you is extended to Dr. Nikolai Potemkin, Director of the Central Forest State Biosphere Reserve, and his staff for their assistance in coordinating the Summer Institute and for the use of their facilities.

This event is arranged as part of the International Polar Year (IPY) and the Northern Eurasia Earth Science Partnership Initiative (NEEPSI) education/outreach activities. The Summer Institute’s focus will be on “Environmental Studies in the Boreal Forest Zone”, “GLOBE Seasons & Biomes”, and promises to be exciting and informative for both research and education. Recent observations have shown that the climate of Northern Eurasia has experienced significant changes, suggesting that we may be in a transition towards a new, warmer state. Understanding these changes and making projections for future climate are very challenging tasks.

This is a unique opportunity to learn about the climate of Northern Eurasia from leading scientists and educators in a wide spectrum of polar and Earth system science disciplines from meteorology, biology, chemistry and earth system modeling, as well as to witness the magic of exploration as you observe and participate in research activities under the guidance of experienced scientists.

We hope that your experience in this 2007 IPY Summer Institute will be personally satisfying and become an important milestone in your careers of research, teaching, communication or other aspects of science.

Best wishes for a successful, enjoyable, and productive participation in the 2007 IPY Summer Institute.

Sincerely,

Larry Hinzman
Director
List of Participants.

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Hotel Building 1.

Hotel Building 2. “Girls”
Dymshakova
Howard
Khovratovich
Kuznetsova
Lisitsyna
Polezhaeva
Pridacha
Shuman
Shilina
Troy

MSU Base. “Boys”
Bohn
Cui
Chechin
Chernokulsky
Dymov
Hou
Karsanaev
O’Donnell
Sapronov
Suvorov
Ye
Yuan
Lodging. Instructors

*Private houses:*
Instructor’s name: Stays with:
Alexeev Potemkins
Groisman Kotchetkovs
Ozdogan Zheltukhins
Maslov Zheltukhins
Kattsov
Mikhailov
Chebakova
Lukina
Romanov
Maksyutov
Kurganova
Lopes de Gerenyu
Vasenev
Karpachevski Own house

*“IPEE Base”*
Kurbatova
Tatarinov
Oltchev
2 students helpers
Khasanov
2 more students

*“Private hotel”*
Cartus
Maksyutov
Le Toan
Hughes
Gutman
Sparrow
Glodowski
Heimann
Plan of the village
Village and the Reserve

Territory of the Reserve ("Zapovednoe")
The village of Fedorovskoe
# Program of activities

14 July, 2007, Saturday  Arrival to Moscow, Russia

15 July, 2007, Sunday  Arrival to Moscow, Russia

16 July, 2007  Monday

8:45 Meeting at the A.N. Severtsov Institute for Ecology and Evolution (Leninsky Prosp. 33)

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30 - 08:30</td>
<td>Breakfast</td>
</tr>
<tr>
<td>08:30 - 09:00</td>
<td>Opening remarks, Introduction</td>
</tr>
<tr>
<td>09:00 - 09:15</td>
<td>Potemkin, Korablev (CBR) History of the Central Biospheric Reserve (CBR)</td>
</tr>
<tr>
<td>09:15 - 10:00</td>
<td>Puzachenko Biospheric reserves and their role in sustainable regional development</td>
</tr>
<tr>
<td>10:00 - 11:00</td>
<td>Groisman Climatic change from in-situ data</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>Break</td>
</tr>
<tr>
<td>11:15 - 12:45</td>
<td>Hughes Climatic change from paleodata</td>
</tr>
<tr>
<td>12:45 - 13:45</td>
<td>Lunch</td>
</tr>
</tbody>
</table>

2nd half of the day: Departure to Fedorovskoe (bus). Supper at the Reserve.

17 July 2007  Tuesday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30 - 08:30</td>
<td>Breakfast</td>
</tr>
<tr>
<td>08:30 - 09:00</td>
<td>Opening remarks, Introduction</td>
</tr>
<tr>
<td>09:00 - 09:15</td>
<td>Gutman Land-cover/use interactions with changing climate</td>
</tr>
<tr>
<td>09:15 - 10:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>10:00 - 11:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>11:00 - 11:15</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>11:15 - 12:45</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>12:45 - 14:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>14:00 - 15:45</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>15:45 - 16:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>16:00 - 17:30</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>17:30 - 18:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>18:00 - 19:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>19:00 - 21:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>21:00 - 23:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
<tr>
<td>23:00 - 07:00</td>
<td>Brief introductions, 1 min each (max 3 slides)</td>
</tr>
</tbody>
</table>
### 18 July 2007 Wednesday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 – 8:30</td>
<td>Breakfast</td>
</tr>
<tr>
<td>9:00 – 10:00</td>
<td>Sparrow/Groisman International Polar Year and Northern Eurasia Earth Science Partnership Initiative research projects in the boreal forest zone boreal forests and climate change</td>
</tr>
<tr>
<td>10:00 – 10:45</td>
<td>Maslov Recent successions in Central Russia</td>
</tr>
<tr>
<td>10:45 – 11:00</td>
<td>Break</td>
</tr>
<tr>
<td>11:00 -12:45</td>
<td>Ozdogan Biospheric remote sensing in the forest zone: Methods used in the USA</td>
</tr>
<tr>
<td>12:45 -14:00</td>
<td>Lunch</td>
</tr>
<tr>
<td>14:00 – 15:45</td>
<td>Cartus Biospheric remote sensing in the forest zone: Methods used in the EU</td>
</tr>
<tr>
<td>16:00 – 17:00</td>
<td>Lukina International Cooperative Program “Forests”: Perspectives of the program implementation in Russia</td>
</tr>
<tr>
<td>17:00 – 18:00</td>
<td>Maslov Biospheric remote sensing in the forest zone: Practical lessons</td>
</tr>
<tr>
<td>18:00 -19:00</td>
<td>Dinner</td>
</tr>
<tr>
<td>19:00 -23:00</td>
<td>Evening activities</td>
</tr>
<tr>
<td>23:00 - 07:00</td>
<td>Curfew (strictly enforced)</td>
</tr>
</tbody>
</table>

### 19 July 2007, Thursday

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 – 8:30</td>
<td>Breakfast</td>
</tr>
<tr>
<td>9.00 - 10:45</td>
<td>Gutman NASA LCLUC regional and continental studies</td>
</tr>
<tr>
<td>10:45 – 11:00</td>
<td>Break</td>
</tr>
<tr>
<td>11:00- 11:45</td>
<td>Kurbatova/Puzachenko Land-atmosphere interactions: field studies at the Carbon Europe flux Tower in the Central Forest Reserve. Types of the field work in the boreal forest zone. Field exercise on recognizing major environmental characteristics observed from space</td>
</tr>
<tr>
<td>12:00-12:45</td>
<td>Tatarinov</td>
</tr>
<tr>
<td>12:45 – 14:00</td>
<td>Sack lunch</td>
</tr>
<tr>
<td>14:00 – 17:45</td>
<td>Puzachenko/Kurbatova/Tatarinov</td>
</tr>
<tr>
<td>17:45 – 19:00</td>
<td>Dinner</td>
</tr>
<tr>
<td>19:00 – 21:00</td>
<td>Round Table. “Gaps in Understanding and Integration of Environmental Studies in the boreal forest zone: Remote Sensing Products”</td>
</tr>
<tr>
<td>21:00 – 23:00</td>
<td>Evening activities</td>
</tr>
</tbody>
</table>
20 July 2007, Friday

7:30 – 8:30 Breakfast
1st half of the day; Fedorovskoe
9:00 – 10:45 Oltchev/Shmakin Modeling of land–atmosphere interaction on regional scale
10:45 -11:00 Break
11:00 -12:45 Maksyutov Bioclimatological Modeling: Continental scale. Part 1
2nd half of the day; Fedorovskoe
12:45 -14:00 Lunch
14:00 – 15:45 Heimann Bioclimatological Modeling: Continental scale. Part 2
15:45 – 16:00 Break
16:00 – 17:45 Schmakin Hydrological modeling in the boreal forest zone
17:45 – 19:00 Dinner
19:00 – 21:00 Round Table. “Gaps in Understanding and Integration of Environmental Studies in the boreal forest zone: Linking Biospheric and climate modeling”. Evening activities

21 July, 2007 Saturday

7:30 – 8:30 Breakfast
1st half of the day; Fedorovskoe
9:00 – 10:00 Oltchev Bioclimatological Modeling: “Gridcell” scale
10:00 – 10:45 Mikhailov Modeling forest dynamics at local scale
10:45 – 11:00 Break
11:00 - 12:45 Puzachenko Field studies along the Ecological Transect and at the oligotrophic bog.
Kurbatova
Tatarinov Reserve staff
2nd half of the day; Fedorovskoe
12:45 – 14:00 Sack lunch
14:00 – 17:45 Puzachenko Field studies along the Ecological Transect and at the oligotrophic bog. Continuation
Kurbatova
Tatarinov Reserve staff
17:45 – 19:00 Dinner
19:00 – 21:00 Round Table. “Integration of biospheric, climatic, and hydrological studies in the boreal forest zone”
21:00 – 23:00 Evening activities

22 July 2007, Sunday

7:30 – 8:30 Breakfast
1st half of the day; Fedorovskoe
9:00 – 10:45 Heimann/ Oltchev/ Vygodskaya Bioclimatological Modeling: Summary of achievements and perspectives for future research
10:45 -11:00 Break
11:00 -12:45 Chebakova Climate change, major disturbances in the boreal forest zone, and their modeling
12:45 -14:00 Lunch
2nd half of the day; Fedorovskoe
14:00 – 15:45 Hughes Methods of paleoclimatic studies with application to the boreal zone
16:00 – 17:45 Puzachenko/ Chebakova Climate, land cover, and biodiversity interactions in the boreal forest zone
18:00 – 19:00 Dinner
19:00 – 23:00 Evening activities
23 July, 2007  Monday

7:30 – 8:30 Breakfast
1st half of the day; Fedorovskoe
9:00 – 10:45 Vygodskaya/Groisman/Oltchev Integration studies in the boreal forest zone: Summary of achievements and perspectives for future research

10:45 – 11:00 Break
11:00 - 12:45 Olchev/Kurbatova Linking bioclimatological modeling and field observations

2nd half of the day; Fedorovskoe
12:45 – 14:00 Lunch
14:00 – 14:50 Repina Air-Snow Interaction. The snow surface properties
14:55 - 15:45 Groisman Snow observations in boreal zone
15:45 – 16:00 Break
16:00 – 17:45 Romanov Snow monitoring from satellites
18:00 – 19:00 Dinner
19:00 – 23:00 Evening activities

24 July, 2007; Tuesday, Bubonitsy, Field Trip to Biostation “Chistyy Les”. Full day travel. Breakfast 7:30am. Dinner 18:00. Sack lunch.

25 July, 2007  Wednesday

7:30 – 8:30 Breakfast
1st half of the day; Fedorovskoe
9:00 – 10:45 Kattsov Climatic change from models
10:45 -11:00 Kattsov/Alexeev Interaction of global processes with regional climate (in models)
11:00 -12:45 Kattsov/Alexeev Break

2nd half of the day; Fedorovskoe
12:45 – 14:00 Lunch
14:00 – 15:30 Karpachevsky Biochemistry of soils in the boreal forest zone
15:30 – 17:45 Kurganova Land Atmosphere Interactions: Field studies of soil respiration
18:00 – 19:00 Dinner
19:00 – 23:00 Evening activities

26 July, 2007  Thursday

1st half of the day; Fedorovskoe
9:00 – 10:00 Kurganova Summary of results on soil respiration
Lopes de Gerenyu Forest windfalls and carbon dynamics
10:00-10:45 Lopes de Gerenyu/Vasenyyev Break
10:45 - 11:00 Alexeev Permafrost in the Arctic
11:00 - 12:45 Alexeev Lunch
12:45 – 14:00 All instructors Work in groups; preparation of reports and presentations

2nd half of the day; Fedorovskoe
14:00 – 17:45 Dinner
18:00 – 19:00 Evening activities
27 July, 2007; Friday, Field trip to Bio-Station Zapadnaya Dvina. Full day travel. Breakfast 7:30am. Sack lunch.

Evening: Farewell supper, barbeque

28 July, 2007 Saturday

7:30 – 8:30 Breakfast
1st half of the day; 9:00 – 11:00 Reports of young career scientists
Fedorovskoe

11:00 – 11:45 Round Table. General Discussion
11:45 – 13:00 Lunch

2nd half of the day. Adjourn; Departure to Moscow (buses).

Field studies are marked with grey shading
Miscellaneous Information

Things to bring
Health Insurance
  Coverage information
  Forms
Extra glasses / contacts
  Non-metal neck lanyard for glasses
  cleaning supplies for contacts
Kleenex tissue, small packs to carry on your person
Mosquito repellent, pump spray (airlines may not allow aerosol cans in the cabin)
Prescription medications
  sufficient for minimum of 2 weeks
  be sure to leave in original containers
Sunglasses (important)
Sunscreen (important)
Over-the-counter medications
  Headache remedies
  cold remedies
  sinus remedies
  diaphragm remedies
  muscle relaxers
  shower soap
  Chapstick
Shampoo & other hair products
Deodorant
Photos & info from your institute
Toothbrush & toothpaste
Electrical converter with assorted plugs
  check to make sure the converter is powerful enough for items being plugged in
Alarm clock
Flashlight
Extra batteries for battery operated equipment
Books and magazines
CDs with your favorite movies
Camera with extra battery
Snack food
Bring extra copies of passport & itinerary

Clothing
Rain gear (rubber boots, jacket)
light weight jacket
cap
shoes or hiking boots
wool or thick socks that wick moisture from skin
long sleeved shirts
long pants
swimwear (optional)
exercise wear (optional)
leisure clothing (wash and wear)
shower shoes or flip flops

Equipment
There is a projector for Power Point presentations, an overhead projector with blank transparencies, a printer, scanner and copier. Please bring a laptop computer if you can. Office supplies will be provided.

Identification Badge
Summer School participants will be given an ID badge. Badge must be worn during the summer school
Accommodation
Same sex occupancy – with several beds in one room. Lockable from the inside. Toilet and shower outside. We bring portable privacy shelters and sun showers. Please bring your own bath towels. All other bedding will be furnished (laundered weekly).

Laundry
Laundry facilities will be made available to the participants. The procedure will be explained at the beginning of the summer school.

Meals and Snacks
There will be a coffee/tea station during the regular summer school hours with hot water and coffee.

Tipping
Is not required. You may however at the end of the summer school, leave books or magazines, have small items to give away such as pens, pins, or candy.

Interpreter
Dr. Ivan Kotlov from the Moscow State University is the Russian/English interpreter and administrative assistant. Most of the instructors are fluent or understand English, but the reserve staff may not.

Commissary or Store
There is a grocery store in the village with everyday basics. Be sure to bring your own essential supplies or purchase them before arriving to the Reserve.

Communications
The village has a transmitting tower and therefore stable cell phone connection but only for SIM-cards purchased from the Moscow Telephone Service (MTS) Company. Other providers do not guarantee connection in the village.

Emergency contact
In the event of an emergency, the people to contact are
1.) Dr. Vladimir Alexeev of IARC. E-mail: valexeev@iarc.uaf.edu
   Phone: Wk +1-907-474-6430; Hm +1-907-488-7427, Mob +1-907-322-2760 (in USA), +7-962-940-8719 (in Russia)
2) Dr. Juliya Kurbatova of IPEE. e-mail: kurbatova.j@gmail.com
   Phone: Hm +7 (495) 389 60 62 Mob +7 903 710 37 44
3) The Reserve: +7(08266)22-433 ph/fax. Email: c_forest@mail.ru
   The information will be relayed to the person during daily contact. A back-up fax will be sent ASAP.

Medical Assistance
There is a small clinic in the village staffed by a Russian medical doctor, ph#: 8-48266 22-4-22, (home: 8-48266 22-4-10). There is a hospital in Nelidovo, Bol'nichnaya str. 4, ph#: (48266) 3-13-02, 3-13-26, 3-12-32 and a clinic, Bol'nichnaya str. 6, ph#: (48266) 3-24-31, 3-30-97.

Valuables
It is recommended not to bring valuable jewelry with you.

Voltage
220 volts on a frequency of 50 Hz
Moscow, RUSSIA and Misc.

Airport arrival
If your arrival date and time is known, someone will be at the airport to meet you. If not, taxi service is available. Have roubles for payment. The same is true for return transportation to your airport. Moscow has 2 international airports – Sheremetyevo-2 and Domodedovo. Taxis usually do not have taximeter, therefore you need to agree with the driver on the price before you get in the car. Usual cost of taxi from Sheremetyevo to Moscow center (e.g., Varshava hotel) is around $50. Do not take unregistered cabs. There is a kiosk for official Moscow taxi at the Sheremetyevo-2 airport.

Lodging
Double occupancy rooms have been reserved at the “Varshava” and “Uzkoe” Hotels. Rooms have been reserved for the nights of July 14, 15 and 28 unless we have been notified otherwise. The “Varshava” is within walking distance to the Severtsov Institute. Participants staying in “Uzkoe” will need to take the subway (orange line, “Kaluzhskaya”) to the “Oktyabrskaya” station, which is on the same line.

Important Note: Information about lodging in Moscow is very likely to be updated. Please pay attention to our email correspondence.

Misc. info
Change currency upon arriving in Moscow. You should be able to exchange your currency for roubles during airport’s working hours. Cash in US, Euro can be changed to Russian Roubles in Moscow in many places. Try to bring new crisp bills. Banks can be very picky about quality of your bills. Credit cards are accepted in some shops in Moscow. No credit cards are accepted in Nelidovo or Fedorovskoe, only cash (Russian Roubles).
Appendix 1

How do I get to the Reserve (Fedorovskoe)?

By car from Moscow.
Take highway M9 from Moscow (Moscow – Riga), turn right at 327km onto road to “Zapovednyi” and drive for 32 km.

Railway from Moscow.
Rizhski railway station (“Rizhskii vokzal”), subway station “Rizhskaya”. Take train 661 “Moscow-Velikie Luki” (leaving at 08:08pm daily) to “Nelidovo” station (arriving 03:03). Take a cab to “Zapovednyi”. Taxi phone numbers: 8-905-608-7707 (this is a cell phone #, as dialed in Russia) or 8(48266) 3-64-64 (this is a local phone in Nelidovo, as dialed in Russia).

Bus from Moscow.
Take a bus leaving from “Rizhskii Vokzal”. Buses park in front of counters for local trains (“elektrichka”). Buses leave at 7:00am and 6:00pm every day. To be there at least half an hour in advance would be a very good idea. The buses go to “Toropets” via “Nelidovo”. The ride takes about 5 1/2 – 6 hours. Then take a cab to “Zapovednyi”.

Bus from Tver’:
Take a bus from the Central bus station to Nelidovo. Buses leave at 9:15am, 1:45pm and 4:00pm daily, 7:00pm (Fridays only). The ride takes about 5 hours.

Costs:
Train from Moscow costs 350 roubles (economy, “platzkart”) or 750 roubles (business, “kupe”). Bus from Moscow is 350 roubles. Bus from Tver’: 300 roubles. Cab from Nelidovo to “Zapovednyi” 400-500 roubles. Cab prices are not fixed. Drivers do not have taximeters. You will always need to agree on the price before you get in a car. Bargaining (which is a norm) usually helps reducing the price. Cab from Moscow to Fedorovskoe (if you take it at an airport) can cost you a fortune. Please let us know when you are arriving so that we can organize a car from the Reserve or village of Fedorovskoe. In this case the price can vary between $100-150.

Как доехать до Центрально-Лесного заповедника

Проезд до центральной усадьбы заповедника из Москвы: автомагистраль Москва Балтия (M9), 327-й километр, съезд с трассы на дорогу направо, до поселка Заповедный 32 км.

Проезд на ж/д транспорте из Москвы: Рижский вокзал, поезд 661 «Москва-Великие Луки», отправлением в 20 часов 08 мин. ежедневно до станции Нелидово, прибытие на станцию в 03 часа 03 мин. с вокзала до поселка заповедный можно добраться на такси (тел 8-905-608-7707; 8(48266) 3-64-64).

Проезд автобусом из Москвы: Рижский вокзал, перед кассами пригородного сообщения посадка на автобусы до г. Торопца (с заездом в г. Нелидово) отправлением в 7.00 (утром); на Нелидово отправлением в 18.00 (вечером). Прибыть на вокзал не позднее 30 мин до отправления автобуса. В г. Нелидово автобусы прибывают в 12.30 и 23.30 соответственно. Далее такси до Заповедника. Стоимость транспорта прим. такая: поезд 350 р. (плацкарт), 750 р. (купе), автобус 350 р. Такси до пос. Заповедный 400 -500 р.

Из Твери: автобус с автовокзала до г. Нелидово отправлением в 9.15, 13.45, 16.00. Прибывает в г. Нелидово в 14.30, 18.15, 21.00 соответственно. Стоимость 300 р. Далее такси до Заповедника.
Medical Information

We ask you to fill out and sign this form. The purpose of this form for us is to have all the information needed in order to get in contact with your doctor and relatives in case of an emergency. We also ask you to attach your medical insurance information to this form.

Name:

Address:

Institution:

Emergency contact:

Medication being taken and why:
   1. name of medication
   2. dosage
   3. times per day
   4. why

Medication allergies

Other allergies
   1. food
   2. insects
   3. …

Medical
   1. asthma
   2. epilepsy
   3. high blood pressure
   4. diabetes
   5. heart alerts
   6. …

Other medical information we should be aware of:

Signature
Appendix 2. Various medical Information.

Encephalitis, Tickborne

Description

Tickborne encephalitis (TBE), also known as spring-summer encephalitis, is a flavivirus infection of the central nervous system. The two main serotypes, European and Far Eastern, are transmitted by the hard ticks *Ixodes ricinus* and *I. persulcatus*, respectively. Humans acquire disease by the bite of an infected tick or rarely, by ingesting unpasteurized dairy products primarily from infected goats, but also sheep or cows.

Occurrence

TBE disease occurs in endemic foci correlated with the distribution of the tick vectors in the temperate regions of Europe and Asia between latitudes 39-65 degrees, extending from western France to Hokkaido in Japan. The countries most heavily impacted are Austria, Belarus, Czech Republic, Estonia, Germany, Hungary, Kazakhastan, Latvia, Lithuania, Poland, Romania, Russia, Slovakia, Switzerland, and the Ukraine. There are also foci in the southern portions of Finland, Norway, Sweden, and the island of Bornholm in Denmark, as well as the northern portions of Albania, Bosnia, Croatia, Italy, Greece, and Slovenia. Sporadic cases have also been reported in Turkey. In China the known endemic areas are Hunchun in Jilin province and western Yunan near the Burmese border.

The tick vectors are most active in warm, moist conditions; thus, there are two peaks of disease in Central Europe: April/May and September/October. In cooler climates there is a single peak in summer. Infected ticks are generally localized in transition zones between different types of vegetation (e.g., forest fringes with adjacent grassland and the transition zones between deciduous and coniferous forests). Individual ticks are suspended on the edges of leaves adjacent to trails and attach to passing mammals.

Risk for Travelers

The risk for travelers to urban or nonforested areas who do not consume unpasteurized dairy products is thought to be negligible. Travelers who sustain unprotected exposure via bicycling, camping, hiking, or fishing; collecting flowers, berries, or mushrooms; or certain occupational activities, such as forestry in endemic areas, might be at high risk, even if the visit is brief.

The number of cases reported from individual countries (see [www.tbe-info.com](http://www.tbe-info.com)) is not always a reliable predictor of risk to the traveler, as it is dependent not only on the ecology within that geographic area, but also on the level of surveillance and the percentage of the population that have been vaccinated. For example, the number of cases in Austria declined from >600 per year to 60 in 2000, when 84% of the population had been vaccinated. Vaccination prevents disease in humans but does not eradicate the virus in the tick population. An unvaccinated tourist staying four months in a highly endemic province in Austria is estimated to have a risk of acquiring TBE of about 1 per 10,000 person-months of exposure. Based on the number of tourist overnight stays in Austria, this would equate to 60 travel-associated clinical TBE cases per summer. Members of a US military unit that trained in a highly endemic area in Bosnia had an infection rate of 0.9/1,000 person-months of exposure.

Clinical Presentation

TBE usually has a biphasic course. The median incubation period is a week. The first phase consists of a few days of fever, fatigue, headache, and muscle pain. This may be followed by a week-long asymptomatic interval before signs of CNS involvement develop, including meningitis, encephalitis, and myelitis, which can result in severe neurologic sequelae. The European form seems to be milder with only 20%-30% experiencing the second phase and a mortality rate less than 1%. Case-fatality rates of 20%-40% have been reported during outbreaks of the Far Eastern subtype, which tends to be monophasic. A slow progressive form in 2%-5% of cases of the Far Eastern subtype is characterized by a long incubation period of years.

TBE should be suspected in travelers who return from an endemic area and present with uncharacteristic influenza-like illness that progresses to aseptic meningitis or encephalitis within 1-4 weeks of return. More than 50% of infected persons will not remember a tick bite. Diagnosis is made by demonstration of specific IgM, which is usually detectable by ELISA during the second (neurologic) phase of the illness. As TBE virus antibodies cross-react with other flaviviruses the laboratory that performs the test will want to know whether there is a prior history of dengue infection or flavivirus vaccination.
Prevention

Travelers may reduce their risk by avoiding exposure to tick-infested areas of forest and woodland during the spring and summer, when ticks are active. They may also protect themselves from tick bites by barrier methods, such as wearing clothing with long sleeves and taping trouser legs or tucking them into socks or shoes. Light-colored clothing makes it easier to detect ticks, and smoothly woven clothing makes it more difficult for ticks to attach. Clothing and camping gear can be impregnated with compounds containing permethrin, which have an acaricidal and repellent effect. These compounds can be used with repellents containing N,N-diethylmetatoluamide (DEET), which can be directly applied to exposed skin (see Protection against Mosquitoes and Other Arthropods). Travelers should also inspect their bodies and clothing for ticks daily during exposure and should avoid unpasteurized dairy products.

Two effective vaccines are available in Europe from Baxter (Vienna, Austria) and Chiron (Marburg, Germany). However, since protection lasting 3 years requires 3 doses (the first 2 separated by 4-12 weeks, and the last at least 9 months after the second), it will be the rare traveler who will be in the position to benefit by immunization. An accelerated schedule is used by some clinicians. Travelers anticipating high-risk exposures, such as working or camping in forested areas or farmland, adventure travelers, expatriates or those planning to live in disease-endemic countries for an extended period of time may need special consideration.

Treatment

The only treatment currently available is supportive. Post-exposure prophylaxis with specific immune globulin is no longer recommended.

http://www.cdc.gov/travel/easteurp.htm#vaccines

Health Information for Travelers to Countries in Eastern Europe and Northern Asia

On This Page

Vaccines for Your Protection
Diseases Found in Eastern Europe and Northern Asia
Other Health Risks
What You Need To Bring With You
Staying Healthy During Your Trip
After You Return Home
For More Information

Travel Notices in Effect

- Registration of Traveler Emergency Contact and Itinerary Information
  (Released June 18, 2007)
- Update: 2007 Measles and Mumps Outbreaks
  (Updated May 17, 2007)
- Human Infection with Avian Influenza A (H5N1) Virus
  (Updated February 2, 2007)
- Interim Guidance about Avian Influenza A (H5N1) for U.S. Citizens Living Abroad
  (Updated February 2, 2007)
- Transportation Security Administration – Security Measures for Air Travel
- U.S. Department of State
- See all Traveler's Health travel notices
Vaccines for Your Protection: Eastern Europe and Northern Asia

Routine Vaccinations

Before travel, be sure you and your children are up to date on all routine immunizations according to schedules approved by the Advisory Committee on Immunization Practice (ACIP). See the schedule for adults and the schedule for infants and children. Some schedules can be accelerated for travel.

See your doctor at least 4–6 weeks before your trip to allow time for shots to take effect. If it is less than 4 weeks before you leave, you should still see your doctor. It might not be too late to get your shots or medications as well as other information about how to protect yourself from illness and injury while traveling.

Recommended Vaccinations and Preventive Medications

The following vaccines may be recommended for your travel to Eastern Europe and Northern Asia. Discuss your travel plans and personal health with a health-care provider to determine which vaccines you will need.

- **Hepatitis A** or immune globulin (IG). Transmission of hepatitis A virus can occur through direct person-to-person contact; through exposure to contaminated water, ice, or shellfish harvested in contaminated water; or from fruits, vegetables, or other foods that are eaten uncooked and that were contaminated during harvesting or subsequent handling.
- **Hepatitis B**, especially if you might be exposed to blood or body fluids (for example, health-care workers), have sexual contact with the local population, or be exposed through medical treatment. Hepatitis B vaccine is now recommended for all infants and for children ages 11–12 years who did not receive the series as infants.
- **Malaria**: if you are traveling to a malaria-risk area in this region, see your health care provider for a prescription antimalarial drug. For details concerning risk and preventive medications, see Malaria Information for Travelers to Eastern Europe and Northern Asia.
- **Rabies**, if you might have extensive unprotected outdoor exposure in rural areas, such as might occur during camping, hiking, or bicycling, or engaging in certain occupational activities.
- **Typhoid**, particularly if you are visiting developing countries in this region. Typhoid fever can be contracted through contaminated drinking water or food, or by eating food or drinking beverages that have been handled by a person who is infected. Large outbreaks are most often related to fecal contamination of water supplies or foods sold by street vendors.
- As needed, booster doses for tetanus-diphtheria and measles. Outbreaks of diphtheria have been reported in states of the former Soviet Union. Travelers to these areas should be sure that their diphtheria immunization is up to date.

Required Vaccinations

- None


Travelers' Health Kit

The purpose of a Travel Kit is twofold: to allow the traveler to take care of minor health problems as they occur and to treat exacerbations of pre-existing medical conditions. A variety of health kits is available commercially and may even be purchased over the internet (see below); however, similar kits can be assembled at home. The specific contents of the health kit are based on destination, duration of travel, type of travel, and the traveler's pre-existing medical conditions. Basic items that should be included
New security measures were implemented on August 10, 2006, regarding what passengers may carry onto the airplane. Up-to-date information may be obtained at the Transportation Security Administration’s Website.

**Medications**

- Personal prescription medications (copies of all prescriptions, including the generic names for medications, and a note from the prescribing physician on letterhead stationary for controlled substances and injectable medications should be carried)
- Antimalarial medications, if applicable
- Antidiarrheal medication (e.g., bismuth subsalicylate, loperamide)
- Antibiotic for self-treatment of moderate to severe diarrhea
- Antihistamine
- Decongestant, alone or in combination with antihistamine
- Antimotion sickness medication
- Acetaminophen, aspirin, ibuprofen, or other medication for pain or fever
- Mild laxative
- Cough suppressant/expectorant
- Throat lozenges
- Antacid
- Antifungal and antibacterial ointments or creams
- 1% hydrocortisone cream
- Epinephrine auto-injector (e.g., EpiPen), especially if history of severe allergic reaction. Also available in smaller-dose package for children.

**Other Important Items**

- Insect repellent containing DEET (up to 50%)
- Sunscreen (preferably SPF 15 or greater)
- Aloe gel for sunburns
- Digital thermometer
- Oral rehydration solution packets
- Basic first-aid items (adhesive bandages, gauze, ace wrap, antiseptic, tweezers, scissors, cotton-tipped applicators)
- Antibacterial hand wipes or alcohol-based hand sanitizer
- Moleskin for blisters
- Lubricating eye drops (e.g., Natural Tears)
- First Aid Quick Reference card

Other items that may be useful in certain circumstances
• Mild sedative (e.g., zolpidem) or other sleep aid
• Anti-anxiety medication
• High-altitude preventive medication
• Water purification tablets
• Commercial suture/syringe kits (to be used by local health-care provider. These items will also require a letter from the
  prescribing physician on letterhead stationary)
• Latex condoms
• Address and phone numbers of area hospitals or clinics

Commercial medical kits are available for a wide range of circumstances, from basic first aid to advanced emergency life support. Many outdoor sporting goods stores sell their own basic first aid kits. For more adventurous travelers, a number of companies produce advanced medical kits and will even customize kits based on specific travel needs. In addition, specialty kits are available for managing diabetes, dealing with dental emergencies, and handling aquatic environments. If travelers choose to purchase a health kit rather than assemble their own, they should be certain to review the contents of the kit carefully to ensure that it has everything needed; supplementation with additional items for comfort may be necessary.

Below is a list of websites supplying a wide range of medical kits. There are many suppliers, and this list is not meant to be all inclusive.

• Adventure Medical Kits: www.adventuremedicalkits.com
• Chinook Medical Gear: www.chinookmed.com
• Harris International Health Care: www.safetravel.com
• Travel Medicine, Inc.: www.travmed.com
• Wilderness Medicine Outfitters: www.wildernessmedicine.com

A final reminder: a health kit is useful only if it is available. It should be carried with the traveler at all times, e.g., in carry-on baggage and on excursions. All medications, especially prescription medications, should be stored in carry-on baggage, in their original containers with clear labels. With heightened airline security, sharp objects will have to remain in checked luggage.

- Deborah Nicolls, Tamara Fisk, Phyllis Kozarsky

**Important:** For current travel notices, such as outbreak and travel precaution advisories, and additional recommendations, see this site's **Destinations** section.
Discrimination and Sexual Harassment
Regulation Note

All University of Alaska Fairbanks employees and other summer school participants are subject to, and must abide by, the university’s policy and regulation on Discrimination and Sexual Harassment, P04.02.020. Full text of the policy and regulation is located at: http://www.alaska.edu/bor/regulation/4r/r04-02.html