

INFORMATION ABOUT THE PERSON FILLING THE FORM	
Name and family name	<i>Nadezhda Stoyanova</i>
Research organization	<i>Forest Research Institute, Bulgarian Academy of Sciences</i>
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EXPERIMENTAL SITE	
Name of the site	<i>Short name and complete name (Original language and English translation)</i> <i>Стационар Говедарци (местн. Овнарско), ИГ БАН</i> <i>Stantion Govedartzi (site Ovnarsko), FRI BAS (Raev, 1983, 2006)</i>
	<i>URL address</i> <i>ДГС Самоков</i> <i>DGS Samokov</i>
Location of the site	<i>Country</i> <i>Bulgaria</i>
	<i>Postal address</i> <i>Държавно горско стопанство ДГС Самоков, технически у-к Говедарци,</i> <i>Опитна база по иглолистните гори ОБИГ „Говедарци”-ИГ БАН</i> <i>DGS Samokov, tehn.u-k Govedartzi, OBIG “Govedartzi” –IG BAN</i>
	<i>UTM coordinates: Latitude/Longitude</i> <i>42°10' / 23°22'</i>
Start date	<i>Year since the experimental site has been operative</i> <i>1964</i>
Characteristics of the forest ecosystem where it is located	<p><i>Most relevant features:</i></p> <ul style="list-style-type: none"> <li>- <i>Vegetation: representative forests of the Norway spruce (Picea abies (L.) Karst.)</i></li> <li>- <i>Soil characteristics: brown-forest soils- Cambisols (Distric and Eutric) by FAO; humus horizon varies from 18 cm to 35 cm, maximum value of pH 5.0; C/N ratio varies in a broad range 16.8–72 in upper soil horizons; carbon content is high.</i></li> <li>- <i>Mean annual temperature: 4.8°C</i></li> <li>- <i>Mean annual rainfall: 957.1 mm</i></li> <li>- <i>Altitude, slope, aspect: 1550 mm, Norway spruce forests, climate, natural regeneration</i></li> <li>- <i>others.....the interception is 39.5% of the annual precipitation</i></li> </ul>
Keywords	<i>3-5 keywords to describe the experimental site and its objectives:</i> <i>temperature, precipitation, regeneration, structure, dinamic</i>

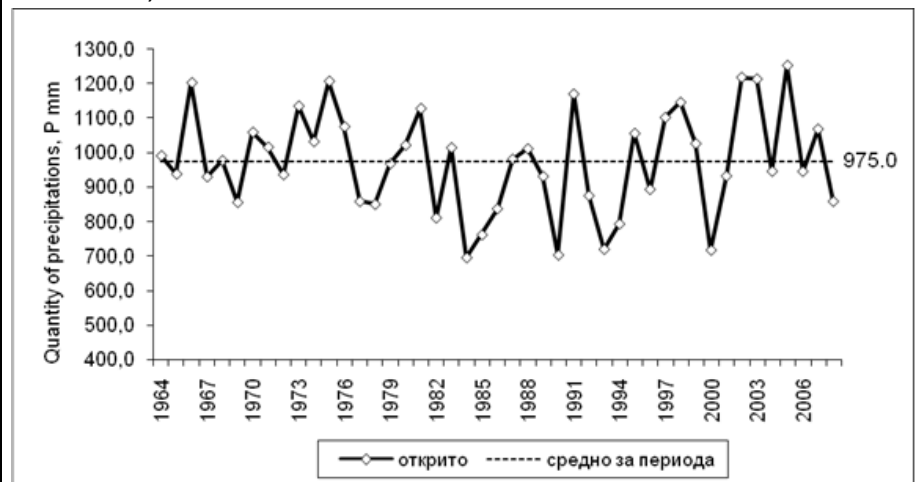
<p><b>Scientific characteristics</b></p>	<p><i>Scientific objectives:</i></p> <p><i>The average monthly air temperature under the densely foliated mature forests is lower compared to the open areas (from 0.0°C to 1.1°C). The potential duration of the growing period in these forests is about 3.5 months (108 days). The climatic conditions are within the limits of the optimal values for providing of constant and high bioproductivity (Raev, 2006).</i></p> <p><i>The distribution and the percentage participation of the forms according to the way of branching, color of the strobilis and the needles, their sizes, the contours of the cone scales and the germination qualities of the seeds are established. The survival and growth of the progeny from the selectea populations are also determined (Alexandrov, 2006).</i></p> <p><i>The specificities of the regeneration processes and the structure of undergrowing plants at different habitats in the zone of Norway spruce distribution from the region of the ecological station Govedartzi were determined. Under the condition of rich and fresh sites the natural regeneration could be supported trough qualitative seedling materials in order formation of mixed double-floors stands with spruce and fir with high productivity (Stoyanova, 2006). A chronology of the radial growth in millimetres and indices for the period 1915-2000 within a range of 85 years was established (Raev et al., 2006).</i></p> <p><i>Interest for users:</i> EFA, MOCB, PP Rila</p> <p><i>Particularities in comparison to others sites:</i> Complex ecological and biological investigations</p> <p><i>Research projects in the frame of which the experimental site is used (include web site address): Monitoring of forest ecosystems in Bulgaria (Autors of: University of Forestry and Forest Research Institute -BAS)</i></p>
<p><b>Technical characteristics</b></p>	<p><i>Detailed description (including instrumentation):</i> <i>The prolonged investigations for the period 1964-2001 on the climate and microclimate of the Norway spruce forests provided a basis for a number of conclusions (Raev, 2006) and the other periods (Raev, Miteva, 2006; Stoyanova, Dimitrov, Miteva, 2009). A good relationship was found between the air temperature and the duration of the solar radiation, between the relative air humidity and the temperatures, between the precipitation and the De Marton index.</i></p> <p><i>Measured parameters: average temperature maximum, minimal temperatures, precipitation, forests, structure, dynamic, natural regeneration, biological productivity</i></p> <p><i>If there is any file, map or images relevant about this infrastructure, please attach them (indicating here the name of the file):</i> <i>The meteorological data have been obtained from high productivity Norway spruce (Picea abies (L.) Karst.), situated on northern slopes of Rila mountain. Precipitation and temperature data covered 45 years period – from 1964 to 2008 (Fig. 1, 2, 3). It has been established that during the period 1999-2008 the mean air</i></p>

temperature has constantly increasing values. The climate characterization describes the dynamics of changes in temperature and precipitations during the study period in open areas surrounded by Norway spruce forests. The mechanism of influence of the climate factors on vegetation cover development and especially of the regeneration of *Picea abies* (L.) Karst. in northern Rila have been investigated (Stoyanova, Dimitrov, Miteva, 2009).

Fig. 1. Dynamics of the average annual air temperature (°C) for the period 1964-2008 (Ovnarsko, 1550 m a.s.l.)



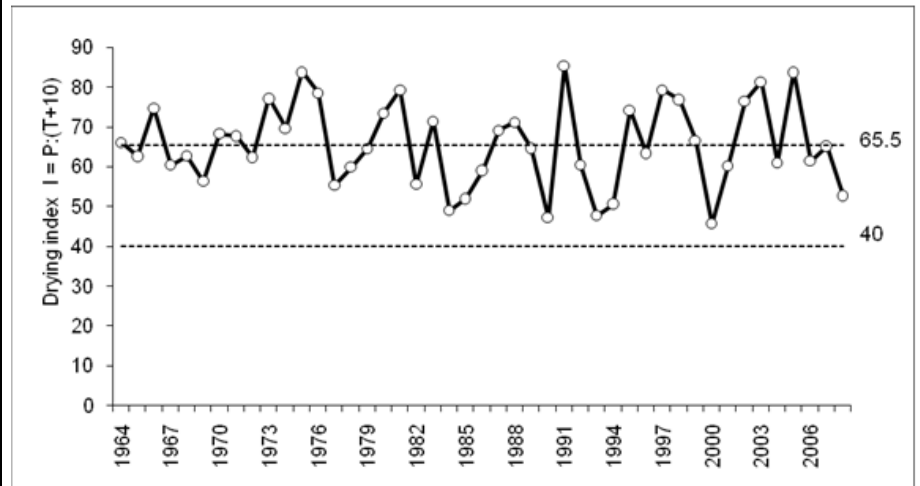
Fig. 2. Quantity of annual precipitations (mm) for the period 1964-2008 (open air, 1550 m a.s.l.)



Естественото възобновяване се изследва в две опитни площи, в дендроценоза от смърч (RG4) и в дендроценоза доминирана от бял бор с подраст от смърч (RG5). Изследва се и възобновяването на горски дървесни видове „на открито“. В определен сектор от бялборовата гора е извършено подпомагане на възобновяването с фиданки от смърч, където се наблюдава формирането на смесена гора от бял бор и смърч. Natural regeneration was studied in two experimental areas in dendrocoenose of spruce (RG4) and dendrocoenose dominated by Scots

pine undergrowth of spruce (RG5). Examine and resumption of forest tree species "outdoors".  
 In particular sector of Scots pine forest is committed to support the resumption of spruce seedlings where there is formation of a mixed forest of pine and spruce.

Fig. 3. Drying index according de Marton in the spruce belt in station Govedartzi-Ovnarsko (open air, 1550 m a.s.l.) for the period 1964-2008



### SCIENTISTS AND/OR TECHNICIANS IN CHARGE OF THE INFRASTRUCTURE

<b>Principal investigator</b>	Name and e-mail address Assoc. Prof. Dr. Nadezhda Stoyanova <a href="mailto:n.ge.stoyanova@abv.bg">n.ge.stoyanova@abv.bg</a>
<b>One additional line per person</b>	Name and e-mail address

### ADMINISTRATIVE INFORMATION

<b>Availability for participating in mutual measurements</b>	Yes or No If yes, Name and e-mail address of the contact person
	Conditions or Policy of use Articles
<b>Availability for accessing the data collected</b>	Yes or No If yes, Name and e-mail address of the contact person Assoc. Prof. Dr. Nadezhda Stoyanova <a href="mailto:n.ge.stoyanova@abv.bg">n.ge.stoyanova@abv.bg</a>
	Conditions or Policy of use: Mutual interest and preliminary agreement



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<b>Institution that manages the site</b>	<i>Name (Original language and English translation)</i> Forest Research Institute BAS <a href="mailto:forestin@bas.bg">forestin@bas.bg</a>
	<i>URL address</i>
<b>Institution that manages the data</b>	<i>Name (Original language and English translation)</i>
	<i>URL address</i>
<b>Is the site participating in a national or international Network?</b>	<i>Name (Original language and English translation):</i> At the moment this site is not participating in Networks
	<i>URL address</i>
<b>Is the site open for transnational collaboration?</b>	<i>Conditions:</i> Изследваният комплекс гори е от горскоекологичната станция „Говедарци“, която е включена в Европейската мрежа от станции за многогодишни изследвания в горски екосистеми и ландшафти (ENFORS), по данни на Раев (2006).  <i>Studies Integrated forest is forest- station " Borovets" , which is included in the European network of stations for many years of research in forest ecosystems and landscapes (ENFORS), according to Raev (2006) .</i>