

Observations on EGMO 2016

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Introduction

The fifth European Girls' Mathematical Olympiad (EGMO) was held in Buşteni (pronounced “bush-ten”), a mountain resort in Romania, between 10 and 16 April 2016.

I participated in this event in my usual roles of IT and Coordinator, travelling with the UK team but not as part of the UK delegation. The UK team consisted of Rosie Cates, Tomoka Kan, Alevtina Studenikina and Naomi Wei, with the leader being Jo Harbour and the deputy leader being Jenny Owladi. More about the EGMO 2016 experience from a UK perspective may be found in Jo's report as leader and in the team's student report, when available. These observations should be read as a supplement to those reports, in the spirit of Geoff Smith's Observations on IMO 2011 and IMO 2012.

Diary

10 April Unlike last year, Geoff Smith will be at this EGMO, but has flown in three days early direct from the Gulf Mathematical Olympiad in Medina. He has been warning us of the risk of bears around Buşteni, while others, arguing about whether Buşteni is in Transylvania, are concerned about the threat from vampires. More prosaically, the UKMT office has advised the team to watch out for stray dogs.

The UK delegation and I gather at Luton Airport. One team member is challenged at check-in about the name in her passport not matching her ticket, but she locates a statement in her passport about alternative names and is allowed through without needing to pay for a change of name. Unlike Lufthansa last year, Wizz Air gets us to the correct country on the correct day. We are met at Bucharest airport by EGMO helpers. On locating me on the list of people they are expecting, we see that my role “IT” has been transmuted into the country Italy.

We wait for some other countries, including the genuine Italians, to arrive, before getting a bus to Buşteni. When we arrive it is after 11pm and

raining heavily. Unusually for EGMO, contestants and deputy leaders are in a separate hotel from leaders and accompanying participants; they are let off at Hotel Silva before the rest of us are taken to Hotel Alexandros.

We check in to the hotel and are given rooms. There have been some problems with the single room requests. I have been assigned to share with Charles Leytem; we object, and a single room is found for me. Meanwhile, at the other hotel, Jenny is sharing with US deputy Sherry Gong. This is also resolved once raised with the organisers. Since US leader Jenny Iglesias has an unexpected single room, we conjecture that someone must have confused Jenny with Jenny.

11 April Leaders who had arrived earlier the previous day had received the proposed problems then. Now we receive the problems with solutions and have a long discussion, with a break for the opening ceremony and lunch. Birgit van Dalen, Chair of the EGMO Advisory Board, is surprised to learn at the opening ceremony that she is expected to speak, but has time to prepare something.

Some of us decide to work on the English language version before the Jury reconvenes after lunch. Unfortunately we are unable to get the Jury room opened early for work, and, once it is opened, the people working on the English version split into two groups working in different corners of the room that cannot see each other. Eventually we realise the other group is there and produce an agreed version, which the Jury then debates and further revises at length. The English version is agreed at 16:31, and work starts on translations. There are to be versions in 31 languages, which is reduced to 30 when the Bosnian leader decides that his Serbian-speaking students can use the Serbian version without needing a separate “Serbian (BIH)” version. At 21:02 we approve 29 versions; one version is still missing. Day 1 papers are printed for contestants and leaders.

12 April The Jury meets at a school near the exam site to process queries from contestants. The organisers propose to give the problems to deputies at 12; the Jury successfully has this changed to 10. Many contestants ask about problem 1, both the meaning of “min” and “max” and whether the numbers must be in ascending order. We then deal at length with the mark schemes for the first day’s problems.

13 April The rain Geoff had brought from the UK has cleared up, and the weather is dry and sunny. The mountain scenery of Buşteni is spectacularly beautiful for the walk to the school for handling queries. At the start of the queries session it becomes clear that there is a mistake in the German version of the paper, where Y_1 should read X_2 , so a correction is distributed to all students with that version. Many questions concern the meaning of

internally and externally tangent. Later, we learn that a contestant came down with appendicitis during this day's exam, but insisted on writing up her solutions to problems 4 and 5 before being taken to hospital. Discussions of day 2 mark schemes go quicker than the discussions the previous day.

Most of the coordinators are in a third hotel. Once the scripts are ready I am taken there to work through my table's scripts on problem 6. Later I discuss the Romanian scripts on that problem with the Dutch, who will be coordinating those scripts as it is a Dutch submission, and are very astute about finding obscure mistakes in the scripts.

14 April This afternoon, there are Google-sponsored mathematical lectures for the contestants. My coordination partner is keen to attend these, and pushes for countries to attend coordination early where possible. Since few contestants have nonzero scores on problem 6, this works, and we finish coordination before lunch, and in the afternoon I attend those lectures.

In the evening we have the final Jury meeting. We do not yet have confirmed hosts for EGMO after EGMO 2017 in Zürich, although some countries are interested. We have a silence in memory of Dan Schwarz, who had a major role in the early years of EGMO. Birgit is unopposed for reelection as Chair of the EGMO AB. The numbers of medals are approved, with the Jury in a generous spirit. The UK has achieved its best ever results, the first time all UK students have received medals at EGMO and with Rosie's award being the UK's first EGMO gold medal. The UK and Dutch staff spend some time playing games after the meeting.

15 April We have an excursion to Peleş Castle, a 19th-century castle built with central heating, followed by Casino Sinaia, a former casino now used as a conference centre. As our bus leaves to return to Buşteni, the US leader and deputy come running up to flag down the bus, apparently having been left behind by accident. A late lunch back at the hotel is followed by the closing ceremony. Geoff and Romanian deputy Maria Romina Ivan give tributes to Dan Schwarz. Medals are awarded, and recipients given flowers and other gifts from sponsors. The blue roses look and smell suspiciously artificial.

We go to the students' hotel for dinner. I sit in the leaders' room at a table rather close to the loudspeakers. The volume gets louder and louder, rendering conversation impossible. Then we are told that the music is quieter in the students' room, where a giant cake is about to appear.

The cake is brought in and ceremonially cut. I return to the leaders' room when it is served. Back in the students' room, the traditional dancing is taking place, with many contestants leaving their cake untouched at their tables to dance.

16 April Last night we had been told our bus would leave the leaders' hotel before 6am to reach the students' hotel at 6. With no sign of a bus here by 6, it transpires that it had gone to the students' hotel first. We leave Buşteni about half an hour late, but still reach the airport in good time. We say goodbye to Geoff, who will fly home via Istanbul, have breakfast, and listen to Vicky Neale talking about EGMO on More or Less. The team have been keeping audio diaries during EGMO, and their contributions will appear the following week.

Rosie and Alevtina have brought their flowers home with them. By this time the roses are looking rather sorry, and we spot a trail of fallen petals through Luton airport. We get through immigration, students are met by parents, and we go our separate ways.

Thanks

Thanks to the Romanian organisers and the EGMO AB for putting on a great event, more than twice the size of the first EGMO, in the extraordinarily beautiful surroundings of Buşteni. Thanks to Geoff Smith and Maria Romina Ivan for their tributes to Dan Schwarz. Thanks to Jo, Jenny, Rosie, Tomoka, Alevtina and Naomi for being good company and outstanding mathematicians and representatives of the UK. Thanks to the UK Mathematics Trust for sponsoring my involvement in EGMO, Bev for arranging travel and Man Group for sponsoring the UK EGMO team.