# Review of the 2015 Field Work Exercise at The Tver International Geography Olympiad

## 1. Introduction

The site of the 2015 IGU Regional Conference was confirmed at the IGU Congress at Cologne in 2012. Alexey Naumov accepted responsibility for co-ordination of the International Geography Olympiad (iGeo) event. In 2014 Alexey provided a detailed proposal to the Task Force about the Russian Local Organising Committee (LOC) recommended use of a field facility (Computaria) near Tver for the Olympiad.

A field visit to Computaria was arranged in 2014, one year before the Russian iGeo. Sue Lomas and Lex Chalmers evaluated the Computaria facilities and the proposed field site at Staritsa. The visit confirmed the suitability of facilities and the appropriateness of the field site, and this approval was formally reported to the iGeo Task Force. Alexey made a presentation about the Tver venue and related arrangements to the International Board at Kraków in August, and the Russian Olympiad site was activated shortly thereafter.

Lex convened the field work exercise committee, with Sue (Director of Tests) an ex-officio member, Pavel Kirillov (Russian FWE1/2 leader), Evelyn Uumeaa (Estonia), and Tricia Seow (Singapore).

The broad theme of the field exercise at Staritsa (sustainable settlement systems) was promoted and agreed in August, 2014 and a steady stream of email exchanges about the format of FWE1 and FWE2 dated from 8 November 2014. The committee worked consistently on the format of questions, assessment and marking schedules. Approval to print the Resource Book and Tasks was delayed by the need to review a FWE1 task as a function of changes at the field site, but the final field visit on 9 August led to Task Force approval to proceed with the original proposal.

## 2. FWE1 and FWE2 Materials

The following documents are posted on the iGeo website and may be linked from this document:

FIELDWORK 1 GUIDANCE
FIELDWORK 1 TASK 1
FIELDWORK 1 TASK 2
FIELDWORK 1 TASK 3
FIELDWORK 1 TASK 4
FIELDWORK 2 RESOURCE BOOKLET
FIELDWORK 2 TASKS 2.1 - 2.3

## 3. Design of the FWE1 and FWE2 field exercises

Sustainable settlement systems was the overarching theme of the field exercise.

The FWE1/1 task required students to observe a low-medium density area of residential development, assessing the type and number of dwellings in an older part of Staritsa. The size of the block needed to be calculated in the field using the scale statement. The calculations and estimated residential density were assessed. The calculation used the 2.7 average number of persons per household as 'given'. The field data was supported by a Staritsa Population density map on page 10 of the Resource book and this geographical information was designed for use in FWE2/3.

FWE1/2 required graphical skills in physical geography with the construction of a cross profile from observation and using a contour map of Moon Valley. The important part of the cross profile was a limestone outcrop, and students were asked to note the uses of this material. The wider importance of this exercise was to direct attention to the physical site characteristics of Staritsa.

FWE1/3 was a cartographic task based on a relatively new recreational/accommodation activity in Moon Valley. Students were asked to observe and map land use features on a map template. The use of symbols and a map key were required. The link to sustainable settlement systems in FWE2/3 was the observation of new initiatives in Staritsa.

FWE1/4 used historical (1910) images of Staritsa and asked students to observe and locate changes in significant features and areas of the settlement. A map template was provided. The link to sustainable settlement systems on FWE2/2 and FWE2/3 was observation and understanding of the change processes in settlements.

FWE2/1 asked students to use a well known, population-based model to show the change in the 'trade area' of Staritsa with reference to other regional settlements. This cartographic exercise is analytical and creative, a higher order skill we expect of students in FWE2. The question was thought likely to be discriminating, but the graphic produced provided a powerful statement of the processes of regional growth/decline. The map produced sshowed a reduction of about 85% in the trade area with reference to Tver, Torzhok and Rzhev. Page 5 of the Resource Book provided graphical and statistical data on population change, and pages 6 and 7 outlined and illustrated the workings of the model.

FWE2/2 also requires higher order skills; students are given a site specific map of land uses in Staritsa (page 9 of the Resource Book) and asked to generalise the map area into six zones. A key box was provided and annotation was allowed. 'Scaffolding' was provided, with examples. Students need also to compare land uses on the north and south sides of the Volga. In the question there is a specific link to FWE2/3.

FWE2/3 required higher order geographical thinking and was the most substantial text-based answer required. On the basis of a statement about the theme of the field work exercise (page 3 and 4 of the Resource Book), students were asked to think about a geographically sustainable strategy for Staritsa in the next 20 years and to (1) indicate one environmental, economic and social factor behind their strategy, (b) the important geographical outcomes of their strategy at the Staritsa scale (c) the agencies that would need to come together to implement their strategy and (d) the opportunities to integrate the specific plan with other strategies.

## 4. FWE1 on the day

The field site was some distance from Computeria. Students travelled in four buses, with one member of each team on each bus. Cell phones were prohibited items. The Guidance sheet explains the organisation of four sites at Staritsa. Despite an early start the transit time was longer on the day than expected given the restrictions of a police escort. Non-delivery of toilets in Staritsa also caused some delays.

In the field, the staging of the FWE1 traverse worked well. The student answers were collected at each site, but the *Guidance* sheet explained that students *may make additional notes in the space provided on the back of this sheet before you leave each stage*. The route had some steep sections and parts were over short but heavy grass. The FWE1 organisers made local drying arrangements for some scripts that got wet during a brief but heavy shower.

Individual notes were collected when the students reassembled for transport to the lunch pavilions at the Monastery. The notes were then provided to students in FWE2 as an additional resource for their use.

Almost as soon as the students left the field area there was a high intensity and extended thunderstorm. This occurred just before the marking teams for FWE1 and FWE2 arrived to view the field site. On the basis of both comfort and personal safety, the field work organisers took the decision not to take markers on to the site. Those who had remained on the site reported parts of the circuit were impassable. Organisers subsequently agreed to supplement the detailed marking guidelines and instruction with an extra presentation for markers from fieldwork staff.

5. Juries, marking schedules, student responses (FWE2), comments and summary statistics

**FWE1/1 (marked out of 4)**

Marking jury: Wei Dongying and Lex Chalmers (replacing Tricia Seow)

The assessment was based on evidence of (a) effective field observation and (b) completion of simple calculations.
Evidence of working was required, particularly (i) an estimate of households at around 46 giving a total population number of 124 (2.7*46), and (ii) an area estimate of around 3.8ha.
The optimal estimate of the density of the block became 46 households at an average of 2.7 persons per household (124) living an area of 3.8ha. The calculated density was therefore 32.6 persons per hectare (33/ha). Three marks were available for calculated estimate of population density.

- 3 marks for result in range of 121-127 for the total population and a density of 27.5-37.5/ha. This estimate recognises accurate observation (124/3.8) and calculation.
- 2 marks for result in range of 117-131 for the total population and a density of 22.5-42.5/ha. This estimate recognises acceptable observation (124/3.8) and calculation.
- 1 mark for result in range of 17.5 – 47.5/ha recognises the student probably has some idea of the expected range, can do calculation but has made some error in observation or estimation.

One additional mark was available for estimation processes. In many cases the mark was automatic if the calculation was correct. For all students, 1 mark was available if they include either evidence of a dwellings count between 40 and 50 or an area estimate between 3.5 and 4.0 hectares

Comments. While most students were reasonably close in terms of their observation and summation of dwelling numbers, a surprising number had no idea how to estimate area given a map drawn to scale. This was a surprising outcome. FWE1/1 turned out to be the most discriminating in FWE1.
Statistics
Min 0.0 Max 4.0 Mean 1.49 Std 1.35

**FWE1/2 (marked out of 4)**

Marking jury: Cornelia Fiscutean and Anu Brunila-Kovanen

The assessment used a transparency of the expected profile. 2 marks were available for the shape of the profile drawn. The shape of the profile we expected to see was asymmetric. ‘A’ was on the left hand side at 190m. Gradual slope down for first 150 metres (175m), before 20 metre steep section with a near vertical limestone face. The (alluvial) valley floor was at 150 metres elevation and was over 75m wide at this point. The steep eastern side of the valley was about 350m from the origin at about 165 metres elevation.

- For marking, this profile was printed on a transparency, and the transparency was used to assign marks. There were two marks available for the profile. All of the profile within the dark grey zone – 2 marks. All of the profile within the light grey zone – 1 mark. Acceptable profile, but with part of profile outside both of the zones – 0.5 marks.
- Identification of the rock as limestone 0.5 marks

- 1.5 marks are available for the identification of the uses of limestone. Each of the following would score .5. (a) house/church/civic building, (b) road/rail aggregate, (c) use in metallurgy (iron and glass making) and (d) use in agricultural lime (fertilizer).

Comments: generally quite well done. Perhaps the range required to be met for the full 2 marks on the profile was too tight, and this led to a lower mean than expected, but the lowest standard deviation.

Statistics

Min 0.0 Max 3.5 Mean 1.74 Std 0.77

**FWE1/3 (marked out of 4)**

Marking jury: Mariana Soultanova and Hana Svobodova

The Local Organising Committee provided the map used for assessment. The marking instructions were as follows.

- Each mapped landuse that was located reasonably accurately and described appropriately in the legend scored 0.5m up to 3 marks. Once a student has 6 sites identified correctly, the marker stop assessing.
- There was 1 mark allocated for mapping. If the field drawing had areas with clearly defined boundaries, and there was effective/appropriate use of symbols, the marker gave 1.0. If there was evidence of confusion and symbols were inappropriate (e.g. red used to outline/symbolise vegetation and/or the pond) but the map was still clear, then .5. For poorly produced maps that still have six features shown, then 0.

Comments: generally the most successful FWE1 exercise, showing most students have been taught or alerted to the need to map clearly in the Olympiad tests. Highest average mark with a low standard deviation.

Statistics

Min 0.0 Max 4.0 Mean 2.71 Std 0.81

**FWE1/4 (marked out of 4)**

Marking jury: Marek Barwinski and Liudmila Fakeyeva

Contemporary photographs taken at the sites were made available, as the markers had not visited site 4. There were 6 things to mark: 2 areas and 4 features. If there were more things mapped, marks for the best ones (2 and 4) were awarded only. Only correctly mapped (over 50% overlap for areas and correctly located features recognized), annotated elements can score full mark.

- Areas: Two areas worth 1 mark each (2 marks max.) Markers scored the two best areas mapped; they needed to be correctly located on the map. There must be an entry in the key, otherwise half a mark only. The typical areas were the gardening area (middle right of figure 1) or the carpark (left foreground). In Figure 2, the Volga interfluve (left distance) and the loading beach (in foreground) were also be acceptable.
- Features: Four features worth .5 marks each (2 marks max.) The two bridges (one had disappeared and a new one was built) were features that were mapped and annotated in the key. Appeared: new bridge, war memorial, new houses, new infrastructure (roads, chimneys indicating different industries etc. Disappeared: churches (2), old bridge, marketplace, wooden floats etc.

Comments: This exercise was quite hard to mark, and students generally received the benefit of doubt. The outcome was that the task was quite discriminating with modest mean and quite high standard deviation.

Statistics

Min 0.0 Max 4.0 Mean 2.19 Std 1.07

**FWE2/1 (marked out of 6)**
Marking jury: Milton Brown and Ivan Čanjevac
A drawn model was prepared for the markers, but the use of a cut out shape (made by the markers) was found to be more efficient in the marking process. The convener of the marking jury in consultation with the DoT decided not to award marks for estimates of change in zone of influence where there was no evidence that the student had made and used the model to arrive at the estimate.

- Two marks were for each of the polygons (1867 and 2015), with 1 mark for right shape (an irregular polygon with Staritsa at its centre) and 1 mark for size determined by the location (within 5mm) of each vertice. For each zone of influence polygon, the marks available were 2, 1.5, 1 and .5.
- Two marks were allocated to the estimated change in the zone of influence. Students used calculated the areas of the two polygons and show the area of the 2015 polygon as a proportion of the 1867 polygon. Any estimate within 10% of the worked figure (85%) was given 2 marks, provided it was expressed as a negative change in the zone of influence. Any estimate within 20% of the figure got 1 mark, provided it was expressed as a negative change in the zone of influence. No marks for estimates that showed an increase in the zone of influence, or reported values of more than 20% greater or smaller than the figure in the worked model.

Comments: Quite a few students did not score or did not attempt this question, but those who worked through the exercise on the basis of the resource material often scored 5 or 6 full marks (59 students). The bimodal mark distribution led to a high standard deviation for this task.
Statistics
Min 0.0 Max 6.0 Mean 3.03 Std 2.50

**FWE2/2 (marked out of 8)**
Marking jury: Birgit Justesen and Piret Pungas-Kohv

- Two marks were available for the table; a maximum of 1 mark for three common features (e.g. housing, schools, heritage sites), and 1 mark for three specific features for each bank (e.g. active monastery, industrial sites versus original site). For one or more acceptable answer in both bank-specific features, 0.5 marks can be awarded.
- Six marks were available for the map. Four marks were available for obligatory zones that included good key descriptions including sub-classification comment. An obligatory category (residential, industrial, heritage/protection and recreational), well described score 1 mark. Six additional zones, each worth half a mark scored .5 mark each.

Comments: This was the most time-consuming question to mark. On the other hand, most students scored quite well on this question
Statistics
Min 0.5 Max 7.5 Mean 4.16 Std 1.68

**FWE2/3 (marked out of 10)**
Marking jury: Louise Richards and Tricia Seow, Annie Pui Kwan So and Annie Timmermans
For the text question, some model texts were provided, and a marking scheme was proposed. On reading the submissions the student answers did not align with the answers. The marking panel resolved the issue by modifying the marking schedule to allow good answers to score well, and to give some credit to those who picked up on field evidence and the responses to earlier questions. FWE2.3(a and b) were each worth 3 and FWE2.3(c and d) were worth 2.

- For FWE2.3(a) there was one mark for identifying each (economic, social and environmental) issue clearly described and relevant to Staritsa.

- In FWE2.3(b) text was required, and the map could be used to locate initiatives. Each initiative had to have a scale and location reported. Site features were also important, and the example of the food market should have provided a lead to this. Non-specific terms like “rejuvenation” attached to an area got modest credit.
- One mark was awarded in FWE2.3(c) for each of two identified stakeholders where they could be described as potentially active in strategies for Staritsa. In terms of beneficiaries, local people would score .5 and “farmers in the region who would …” scored 1.
- For FWE2.3(d), marks were awarded for complementary initiatives that were relevant to Staritsa and related to the identified strategy in FWE2.3(a and b). Half marks were also awarded

Comments: Some students did not appreciate that sustainable development accepts the history/heritage of the area and visualises what may be in the context of what is. Some answers that started with the idea of a clean sheet/site idea were ‘disconnected’ with previous observations, mapping and analysis. They did not score well. On the other hand, there were some perceptive and well written answers that scored well.

Statistics

Min 0.0 Max 9.0 Mean 3.94 Std 1.98