

## **COST Action ES1305 (ENRAM) – Minutes for the March 2015 WG3 visualization challenge**

- Date: 25-27 March 2015
- Title: ‘Bird migration visualization challenge and hackathon’
- Location: University of Amsterdam, Science Park 904, 1098 XH Amsterdam, The Netherlands
- Participants: Judy Shamoun-Baranes (JSB, NL), Hidde Leijnse (HL, NL), Hans van Gasteren (HG, NL), Peter Desmet (PD, BE), Wouter Van den Broeck (WB, BE), Jan Klaas Van Den Meersche (JM, BE), Sergio Branco (SB, PT), Kyle Horton (KH, US), José Alves (JA, PT), Willem Bouten (WB, NL), Arie Dekker (AD, NL)

All information regarding the bird migration visualization challenge and hackathon (“the hackathon”) that we organized for this event can be found at: <http://enram.challengepost.com/>

### **Agenda**

#### **Wednesday**

10:00 – 12:00 Kickoff of event (room B1.25)

Brief introduction of case study (20 minutes), challenge questions & start

12:00 – 13:00 Lunch (Oerknal)

13:00 – 15:00 Meeting for organizers (room C4.215)

Discuss changes to program and organization (what to communicate with our judges)

Discussion of operational visualization

#### **Thursday**

Teams working on their own (Judy @ UvA and available for questions and answers on location)

10:00 – 11:00 Judy, Jose & Peter meet @ Judy’s office

#### **Friday**

9:00 Submission deadline for visualizations created by teams

10:00 – 12:00 Pitch presentations (room B1.25)

12:00 – 13:00 Lunch (Oerknal)

13:00 – 15:00 Jury meets to evaluate projects (room C4.215)

15:00 – 16:30 Announcement of winners and drinks (room C1.112)

16:30 – 18:00 WG3 meeting (room C4.213)

Main aim: write report and summary of hackathon

18:00 – 20:00 Dinner

### **Day 1: Wednesday March 25**

Participants: JSB, HL, HG, PD, WB, JM, SB, KH

10:00: The participants are received at the venue by host JSB. Each participant introduces him/herself.

10:15: JSB presents ENRAM and the challenges in visualizing bird migration detected by weather radars.

10:30: PD explains the goals, practical details and requirements for the hackathon.

10:45 –12:00

Opportunity to meet the other teams and ask questions to the researchers..

Not many teams joined the hackathon unfortunately (one team and two participants not organized as a team). The participants came with a proposal to the organization committee to work on one project with all four participants and leave the competition as such. The benefit of their proposal was that a much better result could be foreseen compared with keeping up the competition. This was agreed upon by organizers as well as all participants.

The judges would be asked to give feedback from their own perspective instead of judge on the given criteria given in the hackathon announcement (<http://enram.challengepost.com/>).

12:00 – 13:00: Lunch

13:00 – 14:00: JSB, HG and PD meet to discuss future work in WG3 and the organization of a WG3 meeting in conjunction with the June STSMs.

13:00 – 23:00: Hackathon team works on their visualizations.

### **Day 2: Thursday March 26**

Participants: JSB, PD, WB, JM, SB, KH, JA

10:00 – 11:00: Meeting with JSB, PD & JA to bring JA up to speed and adapt the agenda for the following day.

11:00 – 12:00: Interim meeting between organizers and hackathon team to discuss progress.

Whole day: Hackathon team works on their visualizations. PD, JA and JSB are available for questions. JA works on ENRAM talk to be presented the following week at the British Ornithologist's Union meeting in the UK, with substantial input from PD and JSB.

### **Day 3: Friday March 27**

Participants: JSB, HL, HG, PD, WB, KM, SB, KH, JA, WB, AD

11:00: Extended submission deadline for the hackathon team. The deadline and agenda are postponed because of a power failure in Amsterdam.

12:00 – 13:00: Lunch

13:00: After everybody introduced him/herself, JSB introduced the judges (WB, AD & HL) and explains them that the participants have worked together as one team, as agreed upon at the start of the hackathon.

13:10: The hackathon team presents their work.

13:30: The judges consult in private with the organizers. Feedback is given and consolidated in a jury report. Future opportunities are discussed as well.

14:00: The judges provide feedback and grant prizes to the team. Group discussion regarding feature collaborations.

15:00: Closing drinks together

18:00: Dinner at the Science park

### **Results of the hackathon**

See the jury report document (see attachment)

### **Evaluation of the Hackathon**

Drafting the website for the hackathon (<http://enram.challengepost.com/>) started in early January and was launched and announced on February 1. An announcement was sent by email to the whole ENRAM community to spread the news to different communities. Social media was used to announce the hackathon and all members used their own networks several times. Finally the deadline was extended to March 15 to allow more people to sign up.

Despite all the work the organization committee has put into the hackathon, only 4 eligible participants signed up. More potential participants showed interest, but had to be refused because they were not eligible for reimbursement (i.e. they were living in non COST-member countries). During the discussion at the end of the meeting, some participants indicated they participated because the challenge was open and not strictly defined, while others indicated they would have preferred clearer goals. Discussions later this spring revealed that (1) students are overwhelmed with hackathons and (2) professors and assistant professors, the people who received the invitations, hardly spread the invitations we sent out.

Nevertheless the current hackathon has resulted in a new type of visualization and incorporation of new developers into ENRAM which might not have occurred otherwise. The opportunity to extend this work either via an STSM or a working group meeting would be highly valued and considered a worthwhile investment.

# Bird migration visualization challenge & hackathon: jury report

Bird migration can be detected by weather radars. The goal of the [European Network for the Radar Surveillance of Animal Movement \(ENRAM\)](#) is to gather and study this type of data on a European scale. One of the main challenges however is to present these data in a comprehensible, intuitive way. This is why ENRAM has organized a [3-day hackathon \(25-27 March 2015\)](#) at the University of Amsterdam, inviting participants to develop a visualization using bird migration data from a [case study](#).

Four participants officially registered for the hackathon: Wouter Van den Broeck and Jan Klaas Van Den Meersche (both from Erasmus Hogeschool Brussels, Belgium), Sérgio Branco (University of Minho, Portugal), and Kyle Horton (University of Oklahoma, United States). After the kickoff meeting on the first day, the participants decided to collaborate as one team.

On the final day of the hackathon, the team submitted and presented [their work](#), which consisted of several visualizations (prototypes), grouped under the name TIMAMP: Time Integrated Multi-Altitude Migration Patterns. The submission was scored by the jury on [four criteria](#).

**TIMAMP** PROJECT RESULTS TEAM

### Interactive visualizations

The following interactive visualizations allow you to explore the migration data in the case study, which covers seven consecutive days during the spring migration season in 2013.

#### TIME INTEGRATED 4-STRATA MIGRATION FLOWS

Start time: April 6, 2013  
Window duration: 5 hrs

This visualization shows bird migration flowlines for four altitude-strata during an observation window of 1 to 8 hours. The flowlines represent bird movement data, integrated over time. The density of the flow is based on the density data averaged over the given window.

#### TIME INTEGRATED MULTI-ALTITUDE MIGRATION FLOWS

Start time: April 7, 2013  
Window duration: 5 hrs

This visualization shows bird migration flowlines for a range of altitudes during an observation window of 1 to 8 hours. The flowlines represent bird movement data, integrated over time. The density of the flow is based on the density data averaged over the given window.

#### ANIMATED MIGRATION FLOWS

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PAUSE PLAY

This animation shows the bird migration flowlines for a sliding 2-hour window. The length of the flowlines corresponds to the projected distance travelled by the migration during the window. The flowlines are color-coded according to their altitude.

The sun clock shows the sunset/sunrise for the spring days on which the shown observations were made. This allows you to clearly see how most migration takes place from dusk till dawn.

**MEET THE TEAM**

3 interactive visualizations of TIMAMP (available at <http://timamp.github.io/>)

We want to congratulate the four participants on their decision to collaborate as a team, combining the specific skills of each team member, but thereby foregoing the competition aspect (and chance to win prizes) of the challenge. The team also sought feedback from the researchers on their initial work and were well prepared.

1. **Submission requirements:** The submission meets all requirements.
2. **Accessibility:** The TIMAMP visualization is ambitious: it combines speed, direction, density, altitude, and time into one visualization. Such a dense visualization is a great tool for researchers (the intended users), but will require some training on their part. There are different ideas on how to improve the visualization, but solutions will have to be discovered through trial and error, in collaboration with the researchers.
3. **Functionality:** The visualization is rendered fast and automatically from the case study data.
4. **Applicability:** The visualization(s) immediately sparked new ideas and has a lot of potential. It would also be applicable on a large scale.

**Conclusion:** the team has created an ambitious visualization (as well as some additional prototypes) in a very short time. The visualization is accessible, functional, and has a lot of potential. The researchers are looking forward to collaborate further with the team members in the near future.

We would like to grant a one year CartoDB Coronelli plans (kindly sponsored by [CartoDB](#)) to Sérgio Branco, Kyle Horton, and Jan Klaas and Wouter (together). We would also like to give them a chance to collaborate further this year with ENRAM researchers through a COST Short Term Scientific Mission or Working Group meeting.

*The Jury of the bird migration visualization challenge & hackathon,*

Willem Bouten - Chair Computational Geo-Ecology, University of Amsterdam

Hidde Leijnse - Weather radar specialist, Royal Netherlands Meteorological Institute (KNMI)

Arie Dekker - Bird strike prevention specialist