Humanitarian OpenStreetMap Team (HOT) is the club's chosen charity for 2016-2017

In October, speaker Paul Uithol, from HOT, gave a talk to the club about the charity's work in compiling maps and data to help countries suffering from natural disasters. Aid agencies in Haiti involved in the aftermath of Hurricane Matthew are currently benefiting from the data collected by HOT. Project manager Paul is one of the mapping experts whose sharing of data has helped in the clear-up following the devastating hurricane. The American Red Cross is just one of the agencies using OpenStreetMap's data to plan the vital distribution of relief around the affected areas of the beleaguered country. Crucial information on roads, buildings, schools, hospitals and shelters identifies the priority areas in Haiti and helps to estimate the scale of the aid needed overall. Most of the data supplied by HOT comes from volunteers – the organisation has been working on disaster response projects with the help of local communities.

OpenStreetMap (OSM) was formally set up in 2006 and is dedicated to providing a web platform to create a free and open map of the entire world to respond quickly to natural disasters. 'Not everywhere is covered by Google maps, and in particular not the less developed areas that also have little resources and capacity to prepare for and respond to natural disasters,' explains Paul. 'The least mapped countries are those which have massive issues.'

Paul (34) had been using the OSM for several years following his time as a student at the University of Twente, and became involved in HOT two years ago. 'It struck me immediately as an awesome and very powerful way to make use of the OSM platform,' he says. His original background is in telematics – a combination of electrical engineering and computer science – and cartography. Paul worked with friends on a system to try to keep track of the runners in the Batavierenrace, the world's largest relay race, to 'try to find some order in the chaos' of 8,000 participants over 200km. 'We initially made some horrible mistakes in our usage of maps and treatment of cartographic detail,' he said. However, the Faculty of Geo-Information Science and Earth Observation of the University of Twente (ITC) helped, and the Batavieren Positioning System (BPS) was developed.

After university, Paul founded a company in location-based services, using lots of open geographical data and services on projects for government agencies, including the Dutch railway network NS. 'Some years and companies later, I found myself in Dar es Salaam, and in a position to apply my combined cartographic and management knowledge in a completely different context,' he says. 'It's been an incredible experience since then.' Paul has travelled to Tanzania and Uganda to galvanise communities into carrying out mapping exercises to help with the severe seasonal flooding.

In Dar es Salaam, the objective of the project is to map all of the drainage and water systems of the city with the help of students and volunteers. The collected data will be utilised to take preventative measures by working on improving the infrastructure to alleviate the threat of flooding. Many of the volunteers in Tanzania had been impacted by flooding themselves, so they are highly motivated to make a difference in addressing the problem.

'Universities are perfect locations to find bright, young people willing to take on difficult challenges,' says Paul. 'Moreover, these are also the people that often turn out to be the future leaders in their country and can benefit a lot from the experience and knowledge gained. Being in the middle of it, at times it can be pure crisis management. It's very hectic and things will go wrong in new and unexpected ways just about every day. There are cultural challenges because management styles differ in effectiveness in different cultures, or time is not regarded as so important, making it hard to arrange appointments or have people be when and where you'd like them to be.'

The organisation has 20,000 volunteers around the globe and 23 staff. For Haiti, over 2000 users contributed more than 2.5 million map edits, based on imagery before and after the hurricane – some of the data had already been available since the 2010 earthquake.

Medecins Sans Frontieres is another important partner to HOT because it uses a lot of OSM data to organise vaccination campaigns, fumigation, and contact tracing – during the Ebola crisis – and other action to stop the spread of diseases. In Nepal, following the earthquake, a unit of the Canadian Armed Forces used crowd-sourced data, satellite imagery and highly detailed maps to reach remote villages. More OSM data helped to direct aid in the wake of major landslides in Sri Lanka in April last year.

'I don't really see myself going back to commercial software engineering anytime soon,' says Paul. 'The work I'm doing with the communities in Uganda, Tanzania and in other countries is immensely rewarding, and I really enjoy seeing so many people grow and learn so much during these projects and to be able to play a part in that.'

www.hotosm.org By Moira Holden