



Introduction

The Humanitarian UAV Network (UAViators) was founded in the aftermath of Typhoon Haiyan, one of the most powerful Typhoons in recorded human history. It took over 60 hours to acquire, analyze and share satellite imagery with responders on the ground to guide their relief efforts. This is too long. Moreover, satellite imagery comes with a host of additional challenges such as cost, data sharing restrictions and accessibility. At the same time, the response to Haiyan saw an unprecedented number of UAVs used to support the relief efforts. Dr. Patrick Meier, founder of UAViators, witnessed all this first hand as he was seconded to the United Nations in the Philippines to support the humanitarian response. None of the UAV groups operating during the relief efforts were talking to each other. Most were not sharing their imagery with local community or with the local authorities. Many did not know how to share their imagery with the United Nations and other international humanitarian organizations on the ground. This experience formed the basis for the launch of the Humanitarian UAV Network. The Network is formally linked to QCRI's Social Innovation Program directed by Dr. Meier.

UAViators, which was recently endorsed by the United Nations, is a volunteer-driven initiative that promotes the safe, responsible and effective use of UAVs in a wide range of humanitarian settings. UAViators has a pro-active and cross-disciplinary Advisory Board. Members of the Board represent humanitarian and development organizations (e.g. United Nations, American Red Cross, World Bank); International policy organizations (e.g. European Commission); NGOs, UAV groups and experts (e.g. ICT4Peace Foundation, DJI, 3DRobotics, Google Project Wing, senseFly, SkyEye, uSense, RPFlySystems, Drone Adventures, ShadowView Foundation, Small UAV Coalition); Researchers (e.g. Norwegian Center for Humanitarian Studies, University of Maryland); and Law firms (GeoLaw, Kraver & Kremin).

The Network has some 1,000 members in over 70 countries around the world. About 200 of these members are UAV pilots. In addition, thanks to the Network's official partnership with AirVid, UAViators has access to an additional 700 vetted, professional UAV pilots in more than 60 countries worldwide. Given that partnerships are key to the Network's mission, UAViators is also exploring partnership opportunities with Aerial Photos for Disaster Emergencies and Recovery (APDER), Rescue Global and Measure 32. The latter recently announced an important partnership with the American Red Cross to pave the way forward for the use of humanitarian UAVs in the US.

UAViators is composed of self-organized teams that are dedicated to 8 core topics or themes: Humanitarian Professionals; Researchers; Technologists; Imagery Analysts; Data Capture; Pilots; Policy Makers; and Lawyers. Each of these teams is described in

more detail on the UAViators.org website. These teams, together with the Advisory Board, serve to support the Network's 4 key strategic goals or pillars. These are: Policy, Operations, Education and Research.

Policy

UAViators seeks to promote enlightened policy making to support the safe, responsible and effective use of UAVs in a wide range of humanitarian settings. As such, the Network convenes policy meetings and advocates on behalf of humanitarian organizations by bringing together leading experts to address major policy gaps. In addition to co-organizing the first ever Experts Meeting at the United Nations in 2014, UAViators is organizing a high-level, 3-day experts meeting supported by the Rockefeller Foundation. The purpose of this meeting, to be held in July 2015, is to build on the UN meeting and address the most pressing policy gaps. UAViators is also working with Advisory Board members Nethope and the Norwegian Center for Humanitarian Studies to organize a panel on humanitarian UAVs at the 2015 Interaction Consortium Conference and one on the use of non-lethal UAVs in conflict zones (also slated for 2015). Finally, in terms of convenings, UAViators will be organizing a second annual Experts Meeting to follow this first one in New York. The next meeting will be held at Harvard University in November 2015 (in collaboration with the Harvard Humanitarian Initiative).

The Network also advocates for appropriate policies through keynote presentations and regular policy speeches. These have included talks given by Dr. Meier at "RPAS 2014" in Brussels, Belgium; "Triple UAV Summit" in Melbourne, Australia; Federal Emergency Management Agency (FEMA) Headquarters in Washington, DC; and at the American Red Cross Headquarters, also in DC.

Lastly, UAViators has drafted (and continues to revise) a Code of Conduct in order to inform international policies and regulations on the use of UAVs for humanitarian purposes. Instrumental to the Network's focus on education is the Code of Conduct and the accompany Operational Check-List (both available at UAViators.org/docs website). The purpose of these documents is to let members of the public know what steps they need to take in order to safely, responsibly and effectively use UAVs in humanitarian settings. UAViators actively promotes the Code of Conduct at expert meetings, keynote presentations and online via social media and mainstream media.

Operations

One of the main motivating factors behind the foundation of the Humanitarian UAV Network is coordination support to ensure safe, responsible, efficient and effective humanitarian UAV missions. The Network thus serves to connect UAV operators responding to the same disaster so that they can share their missions, flight plans and potentially data. The Network's coordination role also serves to connect professional UAV pilots around the world with humanitarian organizations. This service has already been used by a number of humanitarian partners to identify reliable UAV pilots in Liberia, Uganda, Malawi, Tanzania and Indonesia. In addition to the partnership with AirVid, the

Humanitarian UAV Network has access to professional UAV pilots thanks to the UAV manufacturers who sit on the Network's Advisory Board. These manufacturers have global networks of professional UAV pilots thanks to their international resellers.

In addition to supporting the coordination of UAV missions, UAViators seeks to support collaboration around the analysis of aerial imagery by collaborating with key partners and experts in imagery analysis. In terms of operational data analysis platforms for aerial imagery, the Network promotes the use of Humanitarian OpenStreetMap, MicroMappers and MapBox. The first two platforms are based on crowdsourcing solutions that humanitarian organizations have already used for disaster response. The latter is a platform used to host and share aerial imagery.

Given the Network's strong focus on community engagement and community-centered approaches to humanitarian UAVs, UAViators is also directly involved in supporting the operational use of UAVs. In the Philippines, UAViators is working with SkyEye to create workflows for the rapid analysis of aerial imagery using the MicroMappers platforms. UAViators is also partnering with Kathmandu Living Labs (KLL). Nepal is one of the most disaster-prone countries in the world, and the focus on the KLL partnership is to train a local team of UAV operators in Kathmandu for disaster risk reduction, preparedness and response missions. The project is set to launch in Fall 2015 funding permitting.

Lastly on Operations, the Humanitarian UAV Network is partnering with VIVES in Belgium to offer the first ever specialized training and certification course specifically geared towards international humanitarian organizations. The first iteration of the course will take place in Belgium in May 2015.

Education

The purpose of the Network's focus on education is to inform the general public about the important opportunities that UAVs provide in humanitarian settings. As UAVs become both much easier and cheaper to use, the aerial perspective will become increasingly "democratized". This means more and more individuals will be using UAVs and capturing aerial imagery, which poses some serious risks as well as important new opportunities for humanitarian response. To this end, the Network's focus on education serves to raise awareness about the do's and don'ts vis-à-vis the use of this new technology. As such, UAViators seeks to make members of the public part of the solution rather than part of the problem.

In addition, the Network has launched the first ever "Crowdsourced Crisis Map" (UAViators.org/map) of aerial videos and photographs of disaster areas. The purpose of this map is to further promote the Code of Conduct since anyone wishing to post content to the map is asked to first review the Code of Conduct. Naturally the crisis map also serves to augment situational awareness for disaster response by offering another data source for disaster damage and needs assessments.

The Network also offers a Wiki on laws & regulation (UAViators.org/travel-laws) surrounding the use of UAVs across the world. This country director seeks to make existing laws more easily accessible to humanitarian organizations and members of the public. The Wiki also includes a travel section to crowdsource UAV pilots' experiences in

traveling with their UAVs across borders. This travel section thus serves as a “Trip Advisor” for UAVs.

Still on education, UAViators is collaborating with the Omidyar Network to create a UAV Primer Handbook for NGOs who wish to use UAVs. UAViators will be authoring the handbook’s chapter on humanitarian response. In addition, the Network has given a number of webinar presentations on humanitarian UAVs as well presentations to several high schools. In March 2015, UAViators will be on a panel at SXSW to further educate and raise awareness about the use of UAVs in humanitarian settings. Dr. Patrick Meier also served as a judge for Drones for Good & Drones Social Innovation Awards.

Lastly, the Network engages in media outreach to further educate and spread the word on the opportunities (and challenges) of using humanitarian UAVs. To date, UAViators has been featured in the UK Guardian, Los Angeles Times, Bloomberg News, Global Post, UK Guardian, Gizmodo and Virgin Unite. UAViators will be working closely with the Small UAV Coalition—an Advisory Board member—to continue these important media outreach efforts.

Research

The purpose of the Network’s research arm (UAViators.org/docs) is to support and feature research on humanitarian UAV Policy, Operations and Education efforts. As such, UAViators has carried out research on humanitarian UAV missions, reviewed over 170 UAVs for humanitarian use. The Network has also compiled a very comprehensive list of UAV software and imagery analysis software. In addition, UAViators research focuses on ethics, privacy and rights. Finally, research activities focus on future developments in the UAV space.