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# Best Practices for Deconflicting UAS/Drones in SAR Operations



Will Smith - Chair  
Interdisciplinary Drone Working Group (IDWG)

*IDWG formed in 2020 by ICAR with representation across the 4 main ICAR Technical Commissions - Coordinated under AIRCOM*



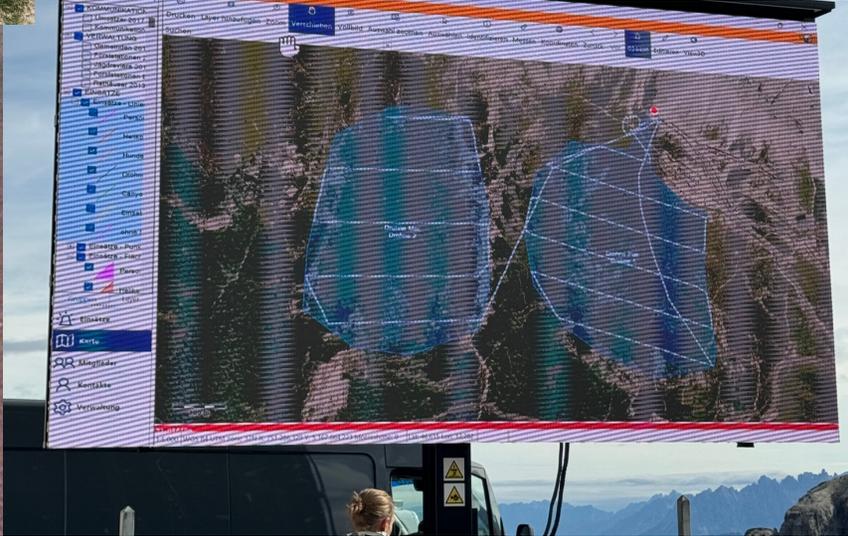
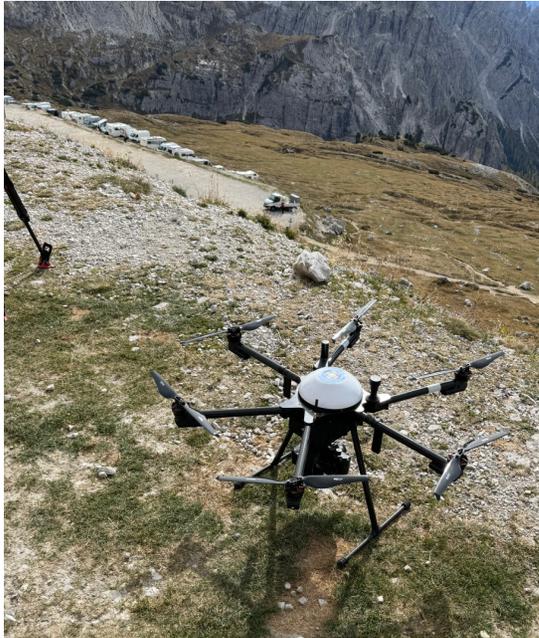
## IDWG Members

- ▶ Chair - Will Smith - Teton County SAR (Wyoming - USA)
- ▶ AIRCOM - Diarmaid Scully - Mountain Rescue Ireland
- ▶ AIRCOM - Matt Ellingham - LandSAR (New Zealand)
- ▶ AVACOM - Claudio Artoni - Italian Avalanche Service
- ▶ AVACOM - Mark Herbison - Parks Canada
- ▶ MEDCOM - Peter Paal - ICAR Medcom Science Lead
- ▶ MEDCOM - Giacomo Strapazzon - EURAC - Institute of Mtn Emerg Med (Italy)
- ▶ TERCOM - Filip Biocic - Croatian Mountain Rescue Service
- ▶ TERCOM - Martin Gurdet - OBRD (Austria)

What are the best practices for *Deconfliction* of UAS/Drone Operations in SAR operations from:

- crewed aircraft (helicopter / fixed wing)
- other UAS/drones (mission / private)
- other flying objects (paragliders / birds / etc.)
- other ground-based obstacles (power lines/ trees / etc.)

# Field Day AIRCOM WS-2 Wed-18Oct2023



# Discussion Session AIRCOM / AVACOM / TERCOM Fri-20Oct2023



# Communication

## Active Communication

- ▶ Voice (radio)
  - Dedicated Frequency for Air OPS
- ▶ Command & Control
  - Air Coordination Officer

## Passive Communication

- ▶ real time detection systems (ADS-B, FLARM, etc. - *Standardized*)

## Crew Resource Management - CRM

- ▶ 2-3 crew members for fully functional UAS/drone team
- ▶ Relationships / practice / coordination - 'TRUST' between pilots



# Flight Plans

## Creation of Geo-Fences

- ▶ Define Mission Space - Where UAS will fly / Where crewed aircraft will fly
- ▶ Vertical (e.g. 300ft/100m AGL)
- ▶ Horizontal (ridge/tree line)

## Loss of communication pre-plan

- ▶ UAS/Drone will **land immediately** if airspace is occupied and communication is lost



# Next Steps

Submit IDWG summary document version 2.0:

- ▶ Including: Best Practices for Deconflicting UAS/Drone in SAR Operations
- ▶ Also:
  - ▶ Strategic and Tactical UAS Operations
  - ▶ Planning
  - ▶ Checklist(s)
  - ▶ Qualifications



ICAR Drone Work Group (IDWG)

International Commission for Alpine Rescue

## RECOMMENDATIONS ON UAS/DRONES IN SEARCH AND RESCUE

### INTRODUCTION

At the ICAR Congress in Zakopane, Poland (Oct. 2019) all four of ICAR's Technical Commissions identified that drones or uncrewed aerial vehicles/systems (UAV/UAS) are becoming an increasing source of influence on work of mountain search and rescue (SAR) and must be viewed as both an asset and a hazard while impacting the work of all ICAR Commissions. ICAR therefore decided to develop an interdisciplinary "Drone Workgroup" tasked with addressing all issues pertaining to drones across all four main ICAR Technical Commissions.

# IDWG Next Steps (cont.)

- ▶ Publish document: 'Current Status of use of Uncrewed Aerial Systems (UAS)/Drones in Search and Rescue - a scoping review'
  - Comprehensive AIRCOM/MEDCOM/AVACOM/TERCOM

## Will Smith - Chair IDWG

Teton County SAR - Jackson, Wyoming, USA

[will@wildernessdoc.com](mailto:will@wildernessdoc.com)



WhatsApp

+1 (307) 699-0230

