

UAV Application in NDRCC: Experiences and Lessons

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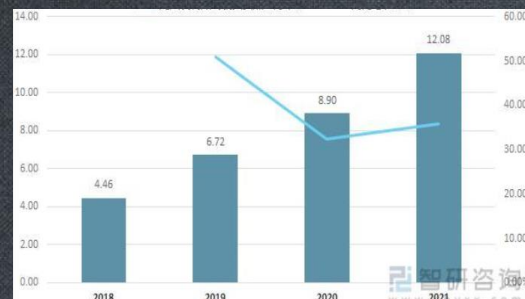
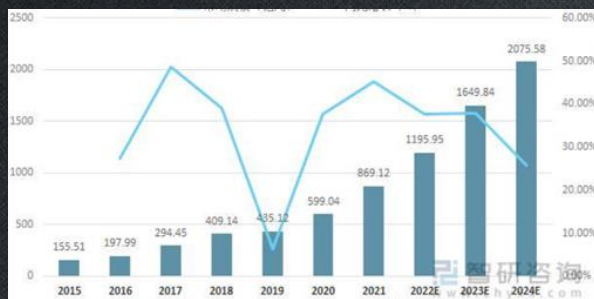
Expanding Industrial UAV Market Empower DRM

UAV SOLUTIONS THAT ADDRESS A VARIETY OF INDUSTRIES

- Assist manual workers in high repetition and labor-intensive work
- replace manual workers in dangerous and difficult work



- Disaster Monitoring & Investigation
- Emergency Communication
- Emergency Rescue
- Fire Fighting
- Loss Assessment
- ...

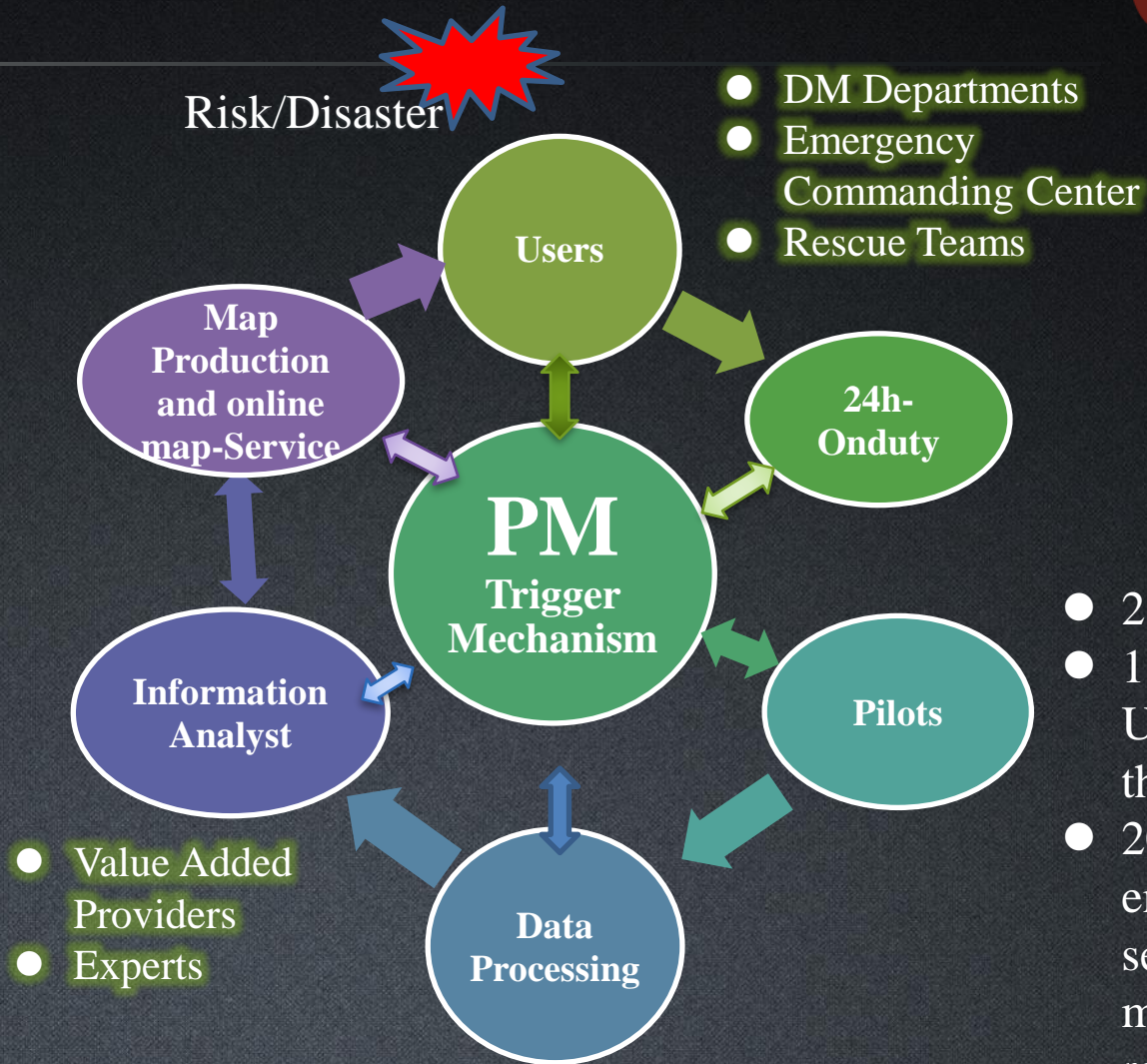


Industrial UAV Market, China (2015-2024 expected)

Number of Licensed Pilots, China (2018-2021, in 10,000)

PPP Cooperation Mechanism of UAV Monitoring in Emergency Response for Major Disasters

- The Mechanism is a bridge connecting Disaster Emergency Management and Rescue Bodies with UAV Flight Service Enterprises;
- “UAV- Network” can quickly acquire key information and provide auxiliary rescue that brings benefit to disaster relief operations;
- The Mechanism is mainly focused on the immediate response phase of Risk and Disaster Events
- Since 2010, Responding Capacities
 - ✓ 2-6 hours in East and Middle of China
 - ✓ 24-48 hours in West and remote areas of China



- 23 partner enterprises
- 135 Professional UAV Teams (more than 200 Pilots)
- 200 short-medium endurance UAV/300 sets of myriad monitoring and rescue payloads

Operational Loop

Supporting Rescuing of the “7.20” Flood in Henan Province, 2021

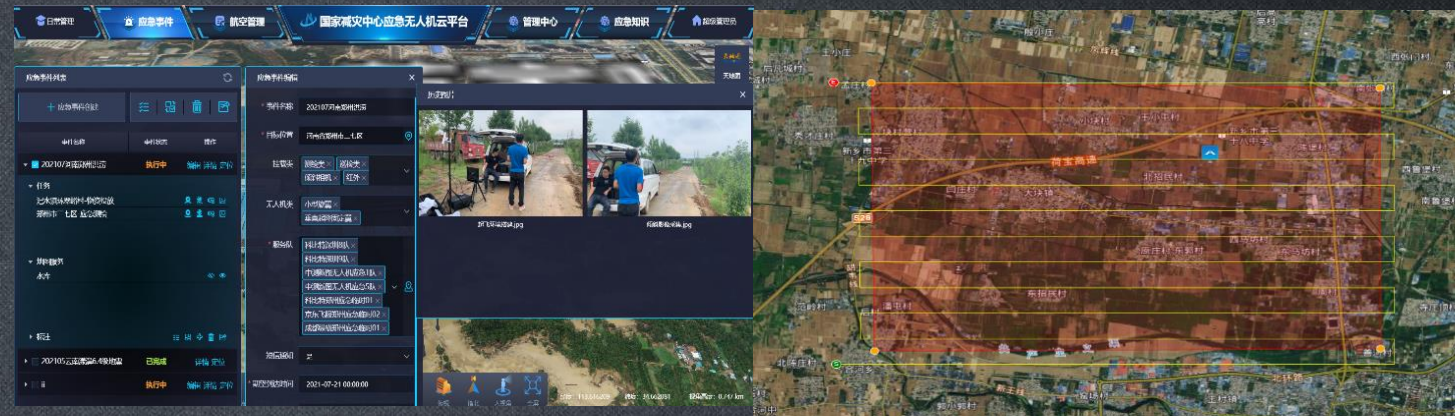
18th July

20th July

21st July to 29th July

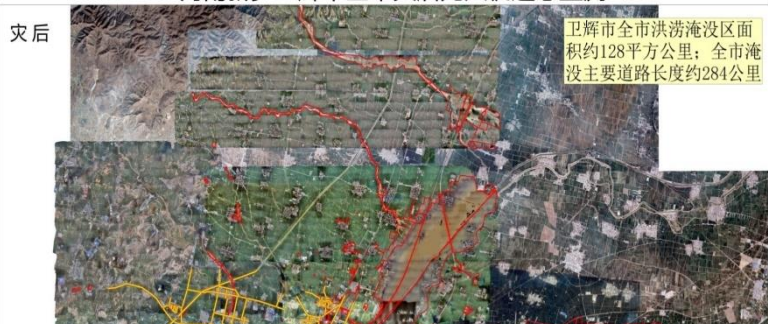
30th July

- Rare torrential rains occurred in Henan, flooding occurred in several rivers including Wei River and Jialu River. Zhengzhou, Xinxiang, Gongyi and other places were severely affected.
- The National Flood Control and Drought Relief Headquarters of PRC initiated **Level III Emergency Response** at 20:00, and was upgraded to **Level II** at 3:00 on the 21st.
- NDRCC initiated Cooperation Mechanism for UAV Monitoring in Emergency Response to Major Disasters, and totally dispatched **14 partners and 19 UAV teams** to the disaster areas through UAV Emergency Monitoring Cloud Platform to obtain High-precision aerial photographs and videos, covering more than **1400km²** in Henan.



Supporting Rescuing of the “7.20” Flood in Henan Province, 2021

河南新乡卫辉市全市灾后无人机遥感监测



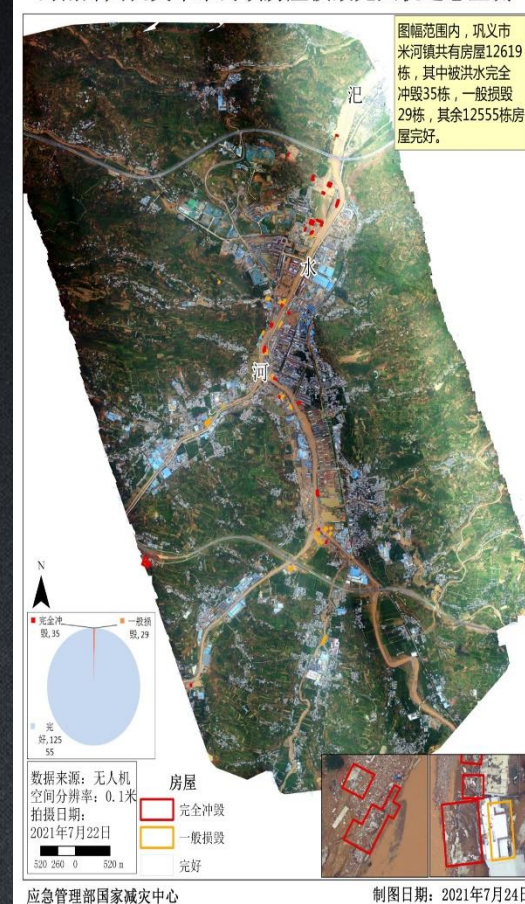
河南郑州交通规划勘察设计院周边无人机遥感监测



河南新乡牧野区新中大大道北侧无人机遥感监测

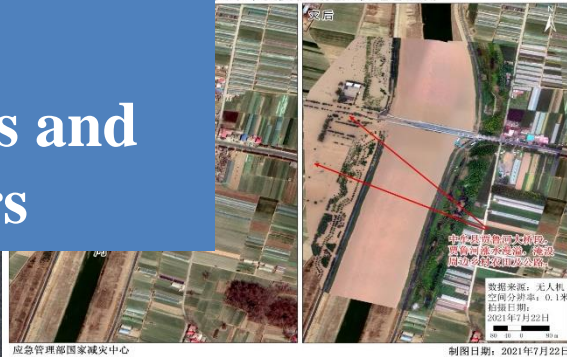


河南郑州巩义市米河镇房屋损毁无人机遥感监测

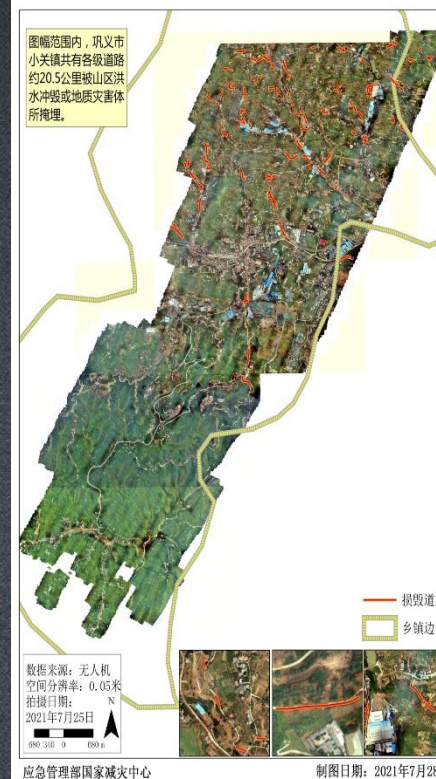


- ◆ More than 70 map products
- ◆ 12 Integrated Reports
- ◆ rescue teams, local governments and front and rear command centers

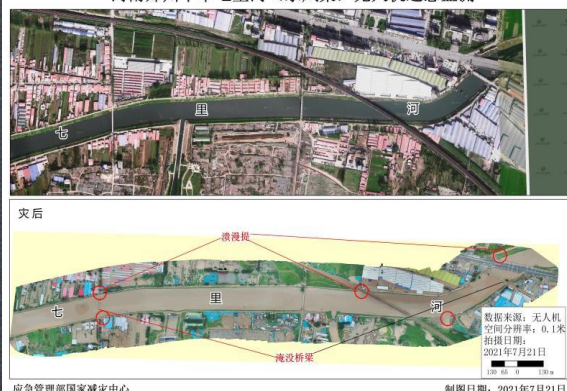
河南中牟县贾鲁河无人机遥感监测



河南郑州巩义市小关镇道路损毁无人机遥感监测



河南郑州中牟七里河(东风渠)无人机遥感监测



河南郑州常庄水库无人机遥感监测



Problems Popping in Practice & Improvements

- 2, Flight Mission Monitoring
- 3, on-site data processing and Data transmitting



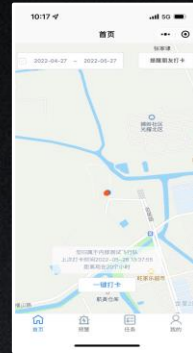
- 1, Dispatch Right Teams at first hand



- 5, Collaboration between UAV teams
- 6, Collaboration between PM and UAV team



- 7, Gaps of UAV professionals and Disaster Monitoring/rescue Requirements



Daily Phase:

Emergency Phase:

Training

Landslide risk monitoring and emergency, Yunnan Province, April, 2022



- ✓ Real time scheduling
- ✓ 0.5h emergency preparedness
- ✓ Arrive at the site within 1.5 hours
- ✓ Real time video surveillance
- ✓ 3D Reconstruction of the Landslide body
- ✓ Expertise Analysis

Curriculum for UAV Technology Applications in Disaster Prevention and Mitigation

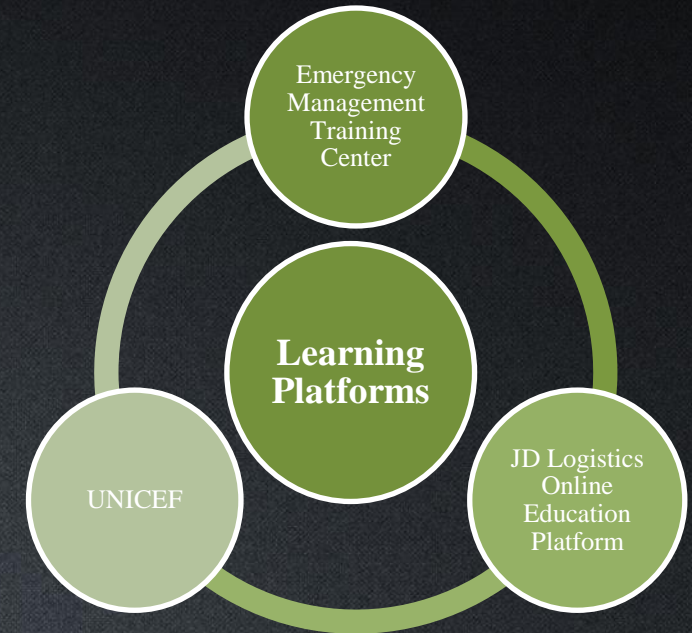
APMCDRR
2022

Objectives:

- ✓ Promote DRM capacity
- ✓ Introduce the technology of UAV system
- ✓ Introduce the knowledge of natural disasters and disaster emergency management
- ✓ Master the application technology of UAVs in DRR

Targeted Participants

- ✓ Emergency Management System Personnel
- ✓ UAV Pilots of the Cooperation Mechanism
- ✓ International Trainees



30 Experts



Thanks for your attention.

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