



ROCKY MOUNTAIN COORDINATING GROUP

Bureau of Indian Affairs (Southwest, Rocky Mountain and Great Plains Regions)
Bureau of Land Management (Colorado and Wyoming)
Fish and Wildlife Service (Mountain-Prairie Region)
Forest Service (Rocky Mountain Region)
National Park Service (Intermountain and Midwest Regions)
State Agencies in Colorado, Wyoming, South Dakota, Nebraska and Kansas

June 29, 2013

To: All Incidents and Units in the Rocky Mountain Geographic Area

From: Coordinator, Rocky Mountain Area Multi-Agency Coordinating Group

Subject: **High Density Altitude Aviation Operations**

For Ground Personnel

The present flight operations being conducted in southern Colorado are taking place in high density altitudes for fire operations. At high density altitudes, expectations of performance for both rotor and fixed-wing aircraft may not align with reality. Ground personnel need to understand that limitations of the aircraft will cause a departure from their normal expectations. These changes include:

- The amount of payload will be reduced.
- The speed of delivery will be reduced.
- In the case of bucket operations, a reduction in water volume will make it difficult to penetrate any significant canopy. As a result of weight reduction, the bucket will be more susceptible to wind and thus accuracy of drops.
- The high density altitude and variable wind are going to greatly reduce the helicopter's ability to slow down to below Effective Translational Lift (ETL) airspeed, requesting hovering spot drops should be avoided.

For Pilots

- Aircraft capability is negatively affected by the higher density altitudes that are likely to be encountered in the Rocky Mountain Area.
- The aircraft's lifting capability is not only affected, but the aerodynamics change, i.e., less responsive. The pilots must anticipate ("stay ahead of") the aircraft flight control inputs.
- Pilots need to keep the aircraft (if tanked) or the bucket a minimum of 50 feet above the canopy.
- Pilots need to remain above ETL at all times, avoiding hovering spot drops.
- Aircraft capabilities must be considered when ordering resources for anticipated high density altitude missions.

Questions may be addressed to the RMA MAC Coordinator at 303-445-4300 or the RMCG Aviation Committee Chair, Steve Sorensen, at 720-626-0738.

Sincerely,

/s/ Mark L. Jones

Mark L. Jones
Coordinator, Rocky Mountain Area Multi-Agency Coordinating Group

CC: RMCG Representatives
RMCG Business Manager
RMCG Committee Chairs
RMA Dispatch Center Managers

Attachment: Additional Pilot Discussion

Additional Pilot Discussion

For pilots, regardless of platform, there remain issues based on aerodynamics. Pilots need to be aware of the continuing changing sum of vectors as it affects lift. At higher density altitudes, there needs to be a greater anticipation of power requirements for maneuvering, to include simple turns. For most pilots especially helicopter pilots, there isn't the actual experience of operating in these higher density altitudes therefore they need to adjust their operations accordingly. For example, if a pilot were to set a normal deceleration attitude with the cyclic the aircraft will not respond as quickly as it does at lower altitudes causing some pilots to add more deceleration attitude. Shortly after the second input is made, the aircraft will respond to the first input. Then shortly after that, the second input will go into effect causing the helicopter to slow, setting the pilot up to continually chase the attitude. The same delayed response will also be experienced with power. Collective inputs normally met at standard altitudes will be felt much slower. The anticipation of power inputs cannot be over exaggerated to include staying at or above ETL to reduce the danger of being in a power-available greater than a power-required situation. At these altitudes the potential to get into an unanticipated rate of descent is very high and hard to stop. At high density altitudes, anticipate needing higher than normal airspeeds and elevations.

For helicopter pilots operating buckets when working in close coordination with ground personnel, be clear about the aircraft's limitations and recognize that it is possible the ground personnel may not have a full understanding regarding the effects of density altitude on an aircraft's capability.