

Experiences with Light Weight Fixed Wing Aerial Mapping UAVs

Werner Mayr¹

Abstract

UAVs seem to be the next “cloud” like topic, not only in geomatics. Unmanned Airborne Vehicles are not a wonder-tool, but a complementary approach to resolve some tasks more efficiently than before or at all. Since 2006 we commercially apply fixed wing, light weight UAVs for aerial mapping purposes. In this paper we like to share our experiences with UAVs of less than 5 kg and illuminate some limitations as well as potentials. Whereas multicopters seem to be in use everywhere, fixed wing UAVs more frequently seem to be applied in specific and geospatially oriented applications. Having processed several hundred UAV aerial mapping projects there forms a stable picture of this technology. Our impressions on durability, handling, and reliability of fixed wing UAVs get presented. We report on our day-to-day experiences and point to often simple hurdles to overcome. Various cameras were flown, different approaches of handling their geometries with different software packages were undertaken. Remarks to achieved geometric accuracies as well as the consequences of using dual frequency GPS instead of simple yet great single frequency GPS are discussed. All of this is packed into the subsequent paper.

1) Dr.-Ing. Werner Mayr, GerMAP GmbH, Justinus-Kerner-Str. 8, 73642 Welzheim, Germany; E-Mail: werner.mayr@germap.com; Web: www.germap.com;