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Climate change impact on the Anatidae in Hokkaido

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Abstract:　Birds are an intricate component of ecosystems, which we need for our own survival. And birds play an important role in the effective functioning of ecosystems. But nowadays climate change especially temperature change is expected to cause shifts in birds distributions and changes phenology of birds in worldwide, threatening their viability. In this study, we selected the Antidae which are the biological family of birds living with water body as model species to find the bird species current situation of distribution and phenology under the changing temperature in Hokkaido.

Keywords：1. Climate change, 2. Anatidae, 3. Distribution, 4. Phenology, 5. Hokkaido.

Objective:　Frist, my research is Impact of climate change on distribution of waterfowls in Hokkaido. This research will use Maximum entropy model (MAXENT) model to predict the winter habitat of waterfowls in Hokkaido in the future 80 years under the IPCC scenario (A2 and B2).For this propose, this research need several environment Variables in Waterfowls current habitat including Vegetation coverage, altitude, land cover etc… UAV will be a great carrier to collect these data. Because UAV can get High resolution Images of target area and exclude a lot of problems about satellite images such as resolution, time period etc…Second, nowadays UAV has already been one kind of popular carrier for habitat monitoring. But most of this kind of monitoring activities are still in their infancy. Through this survey we can get more information and experience about UAV habitat monitoring. And we use this opportunity to test

UAV to Server data link system.

Events:
Date: 2016 年 1 月 14 日 ~ 2016 年 1 月 18 日
Field-work site：Abashiri-shi Hokkaido Japan

Results:

We use Phantom 3 Advanced as our research UAV. We witnessed ハクチョウ many times
around Abashiri lake. We flight around the area around the place where we observed these
birds. We took photos by this UAV every 3 seconds and got 300 photos.
After that we used Pix4dmapper software to process these photos. The results include the
3D model, DSM and Mosaic of research site.

Fig.1 Birds around Abashiri Lake

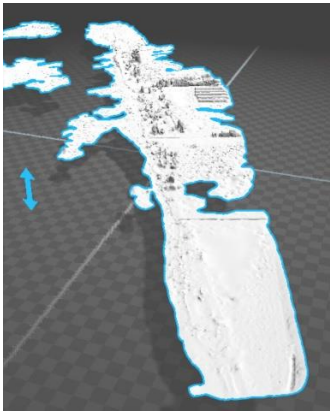Fig.2 Flight Route of our 1st flight

Fig.3 3D map of research area   Fig.4 DSM of research area   Fig.5 Mosaic of research area

Our 2nd survey area is around Notori Lake. Around this lake we also observed ハクチョウ. So we flight the UAV around the lake. We process the data and get the results.
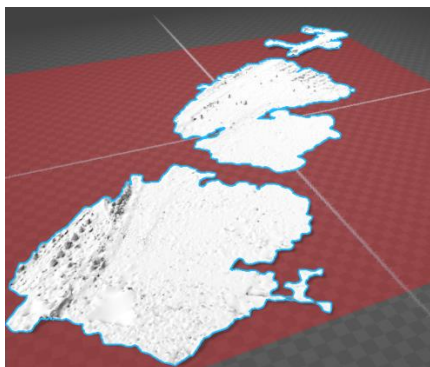

Fig.6 2nd flight route around Notori lake

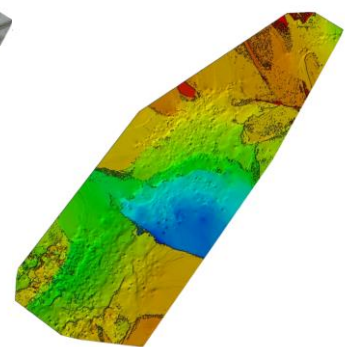Fig.7 3D map of Notori lake area   Fig.8 Mosaic image of Notori lake   Fig.9 DSM of Notori lake