



EASA Workshop

# Population Density Data in the Specific Category

What we do today



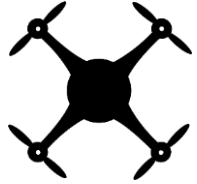
Challenges for the future

LBA Referat B5, Unmanned Aircraft Systems

Astride Soh-Mache

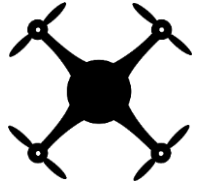
Dr. Falk Götten

# Agenda – 06.10.2023



- Introduction
- How we use population density data today?
- Data fusion for the specific category
- What challenges are we experiencing today?
- Questions for the future

# Introduction



- SORA 2.0 requires distinction between “sparsely populated area” and “populated area” (and “assemblies of people”)
- Qualitative distinction,  
general agreement (quantitative): sparsely populated area  $< 300 \text{ ppl/km}^2$
- Ground risk classification of UAS operations

## Challenges concerning roads, industrial areas, sports parks, beaches...

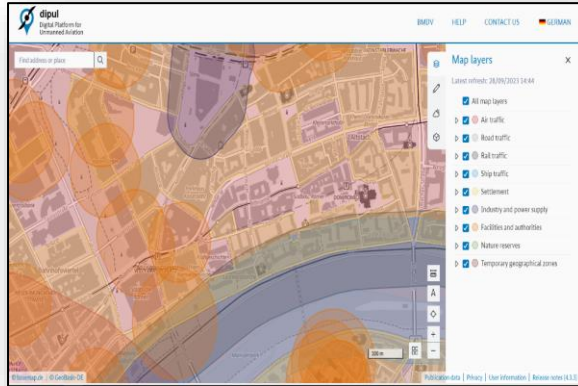
- *Is an industrial area a populated area? What about highways?*
- *Is it the operator's responsibility to validate that a sparsely populated area is actually sparsely populated area before a flight – how should he do that in BVLOS?*



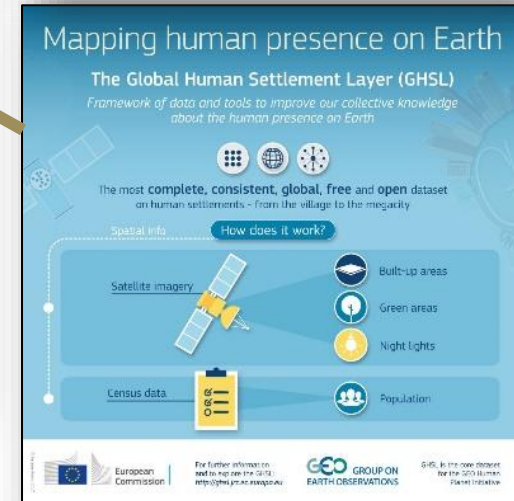
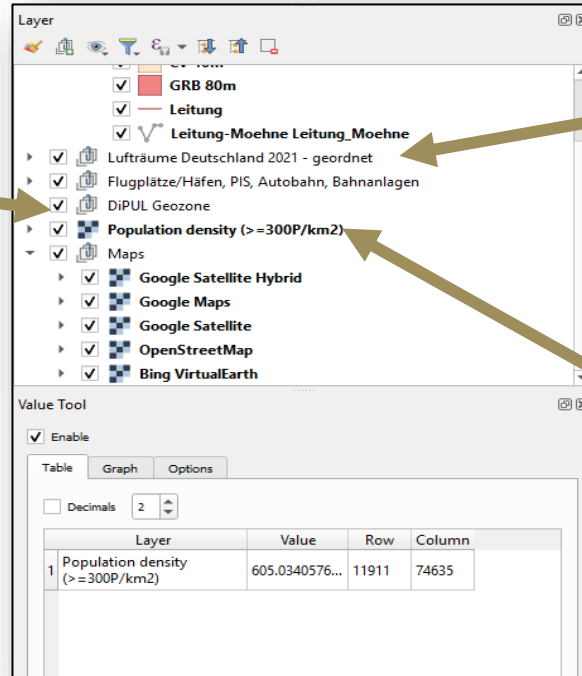
- QGIS: Quantum Geographic Information System
- Free, open-source Source Geographic Information System (GIS)



# LBA today: QGIS – Data fusion - GHSL



DiPUL



Additional references: ICAO map, OpenStreetMap

# Today's Challenges

## Limitations / Constrains of the Global Human Settlement Layer

### Ground Risk

- GHSL Resolution 250m x 250m
- No data is perfect!
- Borders of cities are often incorrectly identified as populated area
- Recent construction activities not included (Kindergarden, playground), data changes!
- No information on actual “people at risk” (on the street).
- *Insurance/reliability issues for a CAA*

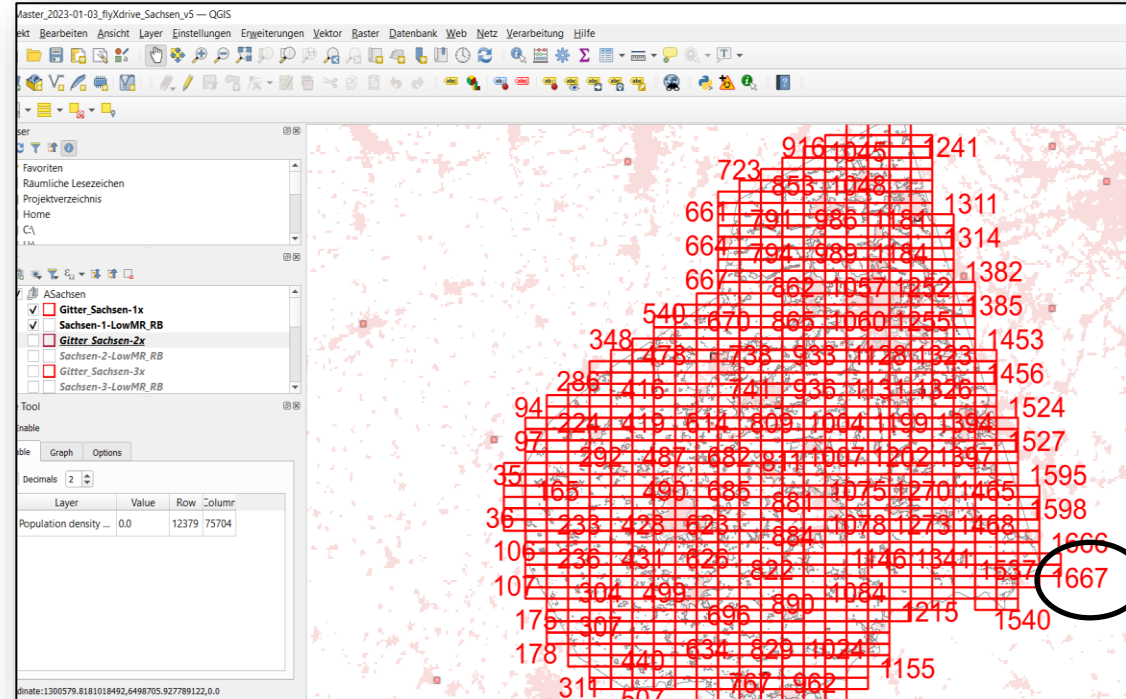




# LBA today: QGIS

## Challenges checking population density in large areas

- Very large BVLOS areas require manual analysis of population density
- Extremely time consuming and prone to error
- For a structured view of large areas we use additional grids
- Not possible for large number of applicants  
→ *this is what industry wants!*



# Today's Challenges

## Data compatibility

Additional challenges:

- Sensor fusion in one tool: Population density, Air risk, Geozones....
- Challenges including ICAO maps and charts
- Depending on the configuration of the operator's kml (or other data) file, operating volumes (FG, CV, GRB) are hard to import
- Long loading times of QGIS due to the high number of data to be loaded
- Harmonization in Europe





# Questions for future development

- What service is acceptable, harmonized in Europe?
- Which data is good data, what are quality criteria for population density data?
- How can a new service be integrated into existing processes?
- What is a good grid size?
- How are we distinguishing “people at risk” vs “population density”?
- How about legal reliability of the data?
- COSTS?!



**Questions ?**