

Data Management



Objectives

1. Discuss principles and necessity of Data Management
 2. Outline the Data Life Cycle relevant to UAS operations
 3. Provide references for data management standards
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Data versus Information

Data is a representation of **facts, concepts** or **instructions** presented in a manner which is suitable for **communication, interpretation, or processing** by machines and humans.

Information is **organized, processed data** which has some meaningful value on which **decisions** are based.

Information provides context for data

Decisions

For **decisions** to be meaningful, **information** must be:

- Timely
- Accurate
- Complete



This is what makes a UAS valuable

Data Management

The **Practices** and **Procedures** to utilize information as a resource

Desired Functions:

- Provide an accurate product
- Eliminate Redundancy
- Establish Consistency
- Efficient Analysis
- Reduce Costs



Roles and Responsibilities for UAS Data

UASD:

- Priority is CWN (Type 1 and 2) support
- Gathers, organizes and stores UAS data for the module
- Develops intelligence products and performs spatial analysis
- Integrates UAS data with the Situation Unit

UASP:

- Collects and stores agency UAS data
 - Creates and disseminates intelligence products as required
 - May need to integrate with Situation Unit for data archival
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Why does it matter?

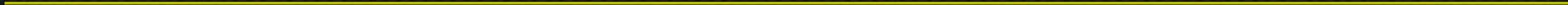
Good Data Management:

- Follows a standard organization and naming convention
- Establishes a workflow that creates efficiency
- Provides for ease of locating and using specific datasets



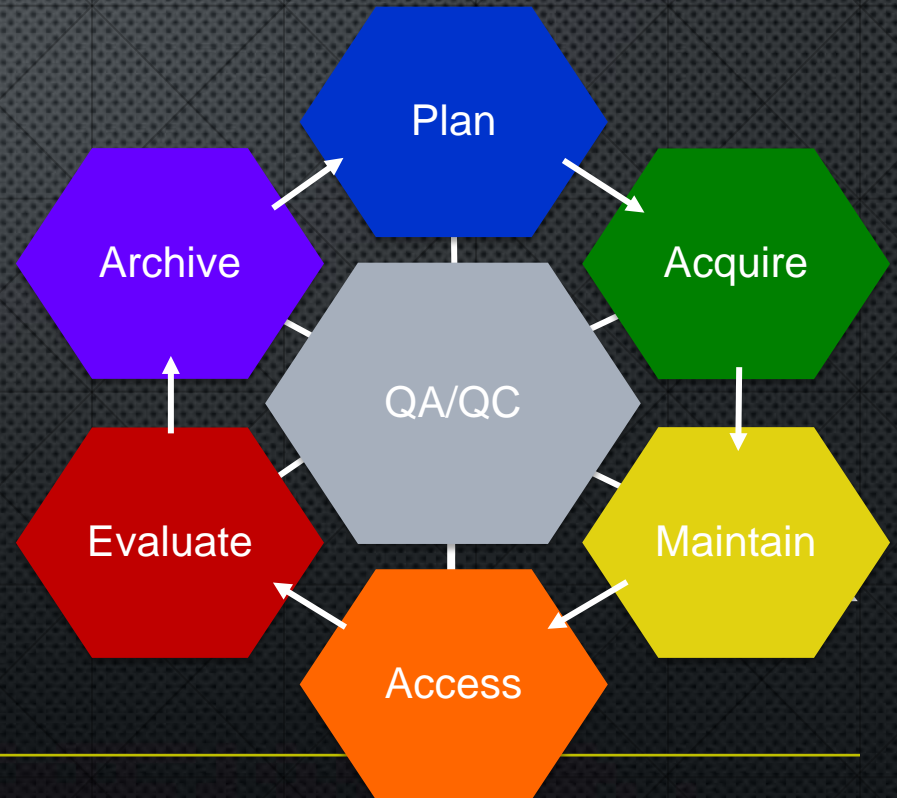
Bad Data Management:

- “Nope, I can’t find that...are you sure it was from this fire?”
- “Well I’m not sure which one of these is right.”
- “Sorry I deleted your awesome spot fire video Joe Don.”



The Data Lifecycle

- Iterative Cycle
- QA/QC of Data:
 - Fit for use - complete and defect free
 - Relevant – right for the purpose
 - Well defined – standards exist and data complies



Data Lifecycle: Planning

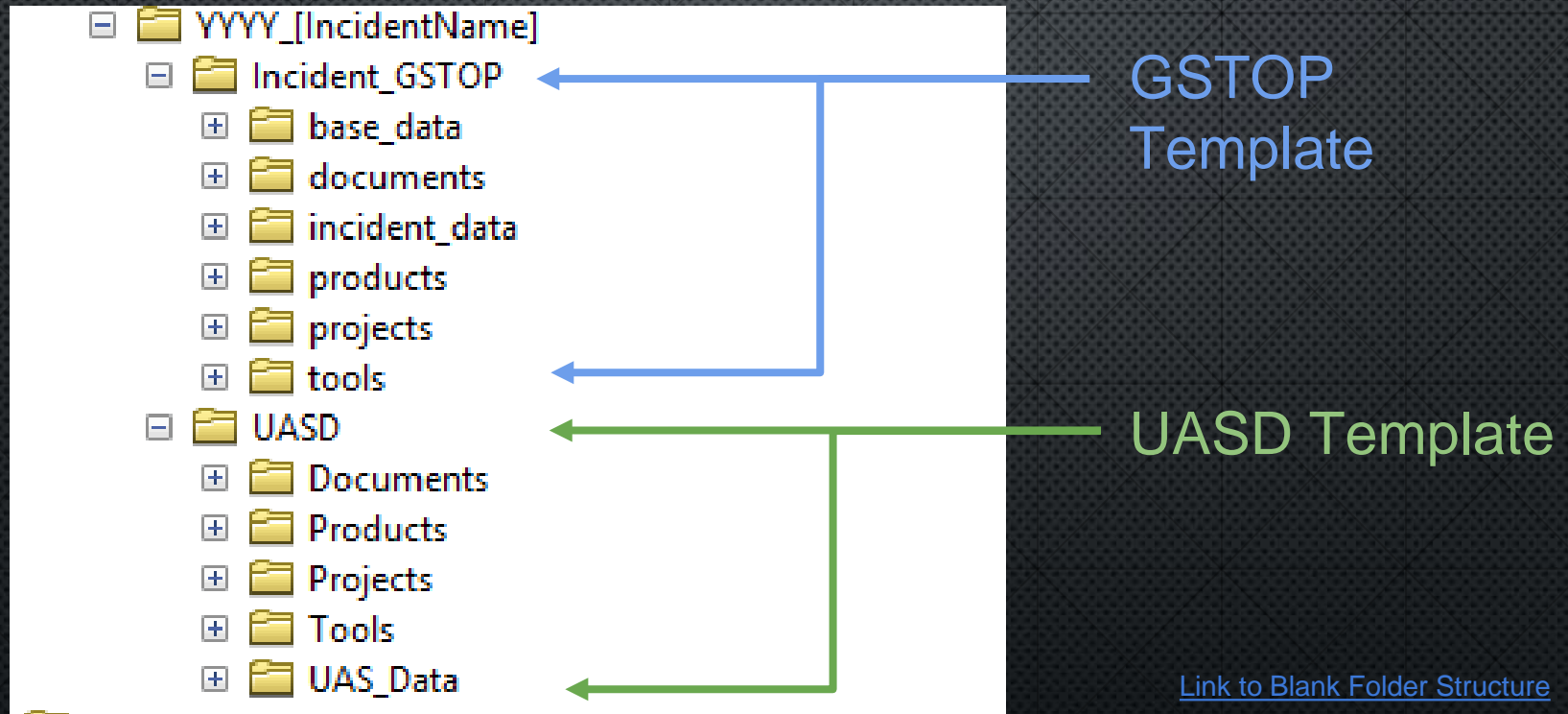
Identify overall objectives and goals

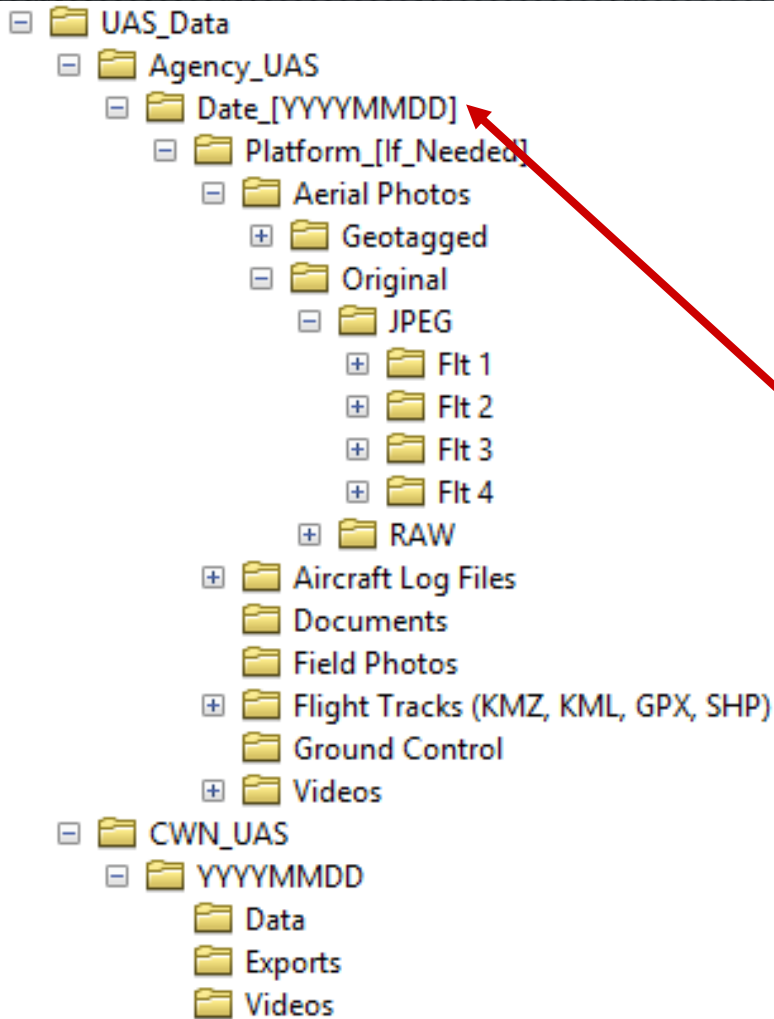
- What decisions are we informing?
- What is our Final Product?

Develop a data management plan

- How do we name and store data?
 - How do we deliver information?
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Storage - Folder Structure and Use





UAS Data Structure

Notes:

- Everything fits together when used correctly
- Keep a blank copy
- Delete what folders you aren't using
- Recreate for each flight day

Data Lifecycle: Acquisition

Gathering data to inform a decision

Final Product drives acquisition requirements:

- Imagery – exposure, focus, framing, lighting
 - Video – resolution, geospatial compatibility
 - Geometry – accuracy, sensor capabilities
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Data Lifecycle: Acquisition

- Check the basics:
 - Coordinate format: Degrees Decimal Minutes (ex: 45 35.467, -116 25.365)
 - Photos and video are clear and usable
 - Remove PII if needed
 - Make note of anything significant affecting data
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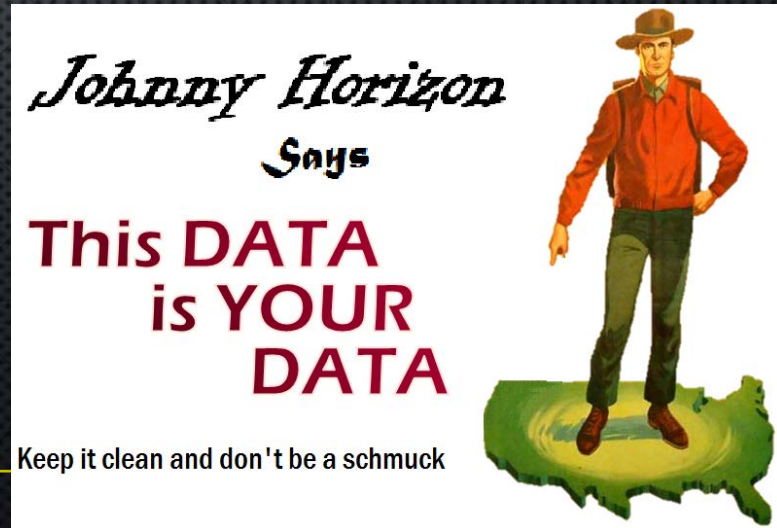
Data Lifecycle: Maintenance

Maintain the standard to execute your plan

- Attribution and amplifying information
- Data cleanup

Keep your data organized

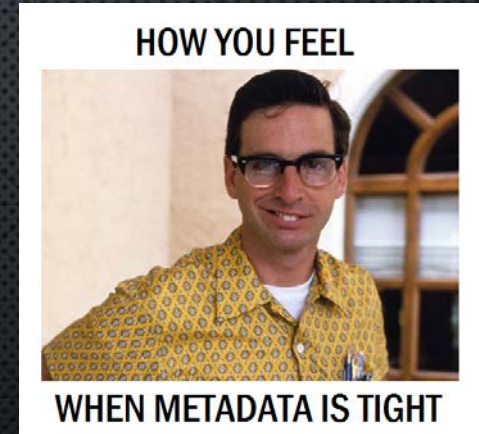
- Naming Conventions
- Folder Structures



Data Lifecycle: Maintenance

Metadata — not just for nerds anymore

- The background information about your data
 - When, where, who, how, and what
- Critical for data quality
- Just as important as the actual data



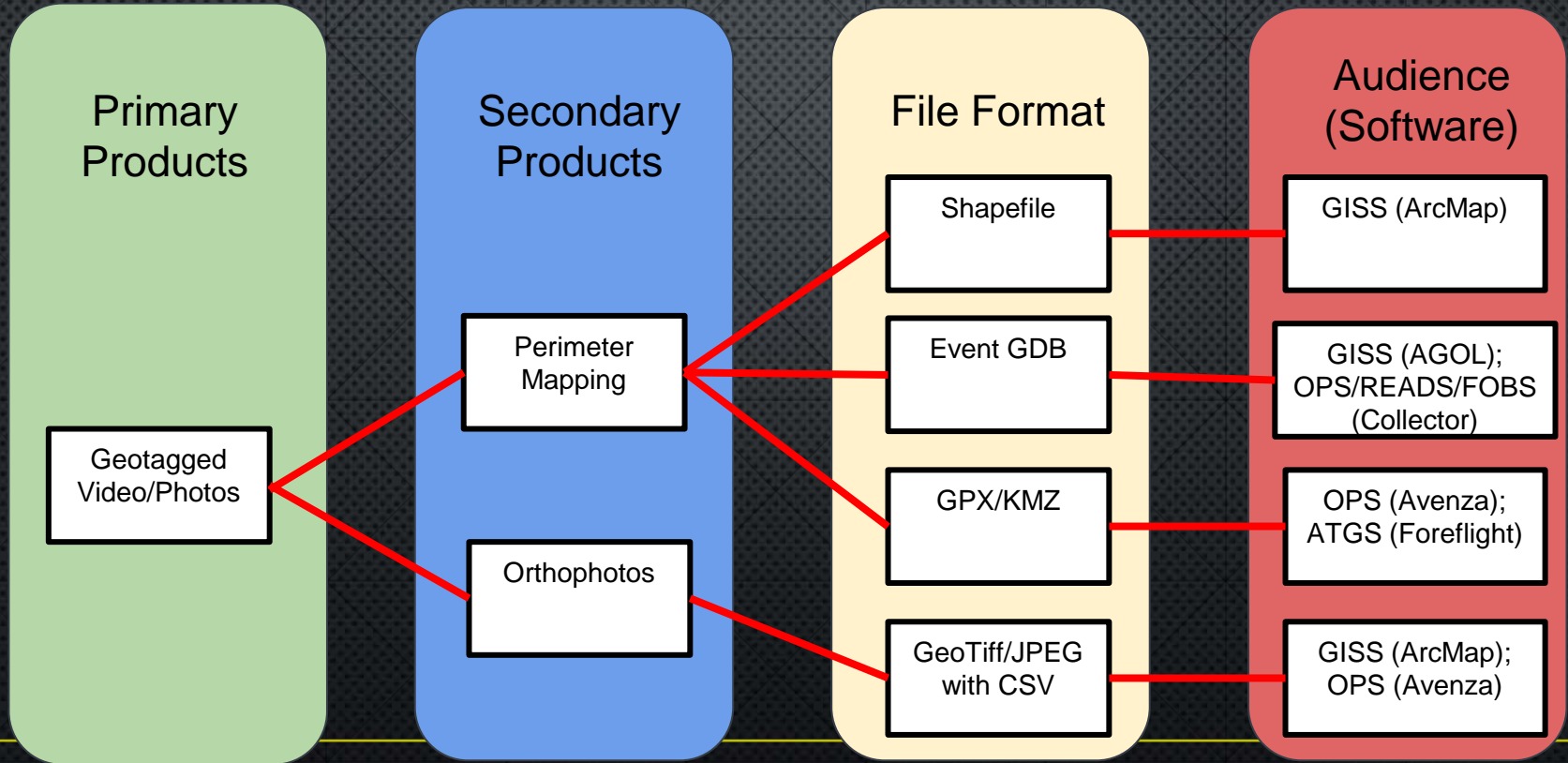
You will thank yourself for good metadata

Data Lifecycle: Access

- Delivery
 - Thumbdrive, Firenet, AGOL, AirDrop, etc.
- Storage
 - External hard drive(s) are great for storage and backup
- What do I send to GISS for record keeping?
 - It depends - incident preferences
 - Typically shapefile info of spot fires, fire line, etc.
 - Early integration is key

Be mindful of data sensitivity

UAS Data Flow



Data Lifecycle: Evaluate

How can we do better next time?

Was the plan adequate and was it followed?

Did our final product meet the goal?

What data can be purged?



Data Lifecycle: **Archive**

- **Planning and maintenance leads to easier archival work**
 - **Again, keep your data clean**
 - **GSTOP guidance is to archive all data necessary to recreate the incident**
 - **What do we do with hours and hours of IR video?**
 - **Ample storage space is critical**
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References

Fire Specifics

- [NWCG Data Management Strategy PMS-940, March 2018](#)

Federal

- [FGDC Metadata Site](#)
- [USGS Metadata Site](#)
- [GSA PII Guidance](#)

General Agency

- [BLM Metadata Guidance](#)
 - [BLM Data Management Sharepoint](#)
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Questions?
