PROPOSAL TO ADD GEOGRAPHIC LOCATION FIELD (GEO) TO NIST TYPE: 10-99

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PROPOSAL TO ADD GEOGRAPHIC LOCATION FIELD (GEO)

- NIST/ITL 2010 proposed update # 19
  - Addition of a geographic location reference (GEO) for sample collection
  - The format of this element is (currently) user defined.

PURPOSE OF GEO FIELD

To facilitate capturing/retaining the physical location (Latitude/Longitude/address) associated to biometric capture events:

- Mobile Subject Identification
  - Fingerprints
  - Photo/SMT
  - Iris/etc
- Stationary Photo/Video surveillance
- Field latent capture/supporting chain of evidence
- Stationary Booking facilities for long term location identifiers.

  fft: ORIs/Country identifiers "do" change over time, Latitude/Longitude "should" remain the same for "assumed" eons

UTILITY OF RECORDING GEO INFORMATION-1

- Assisting officers in the field /with Mobile ID devices to notify the officer if a subject has breached a restraining and/or stay away orders by comparing the actual GEO location to the recorded stay away GEO locations automatically.
(Gang no-entry zone related orders, stalking, etc)

- Recording mobile latent capture events on location using subset/conversion of GPS

- Assisting disaster recovery efforts in identifying the locations of victims last resting place.
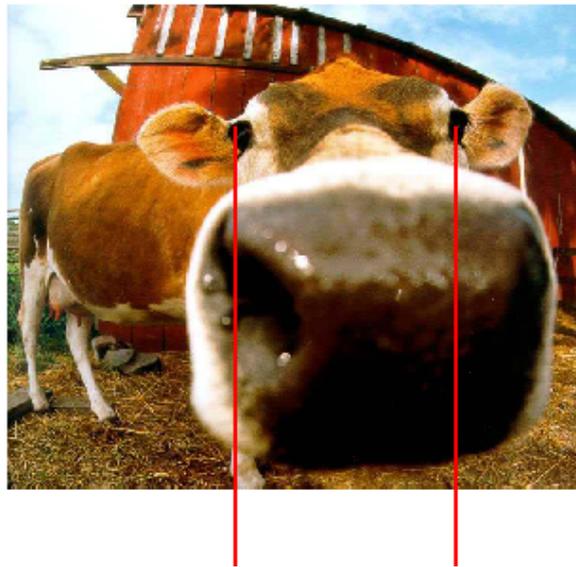
UTILITY OF RECORDING GEO INFORMATION-2

- To facilitate replacing manual field information/identification review documents that are currently used in local PDs and Sheriffs. See sample below:
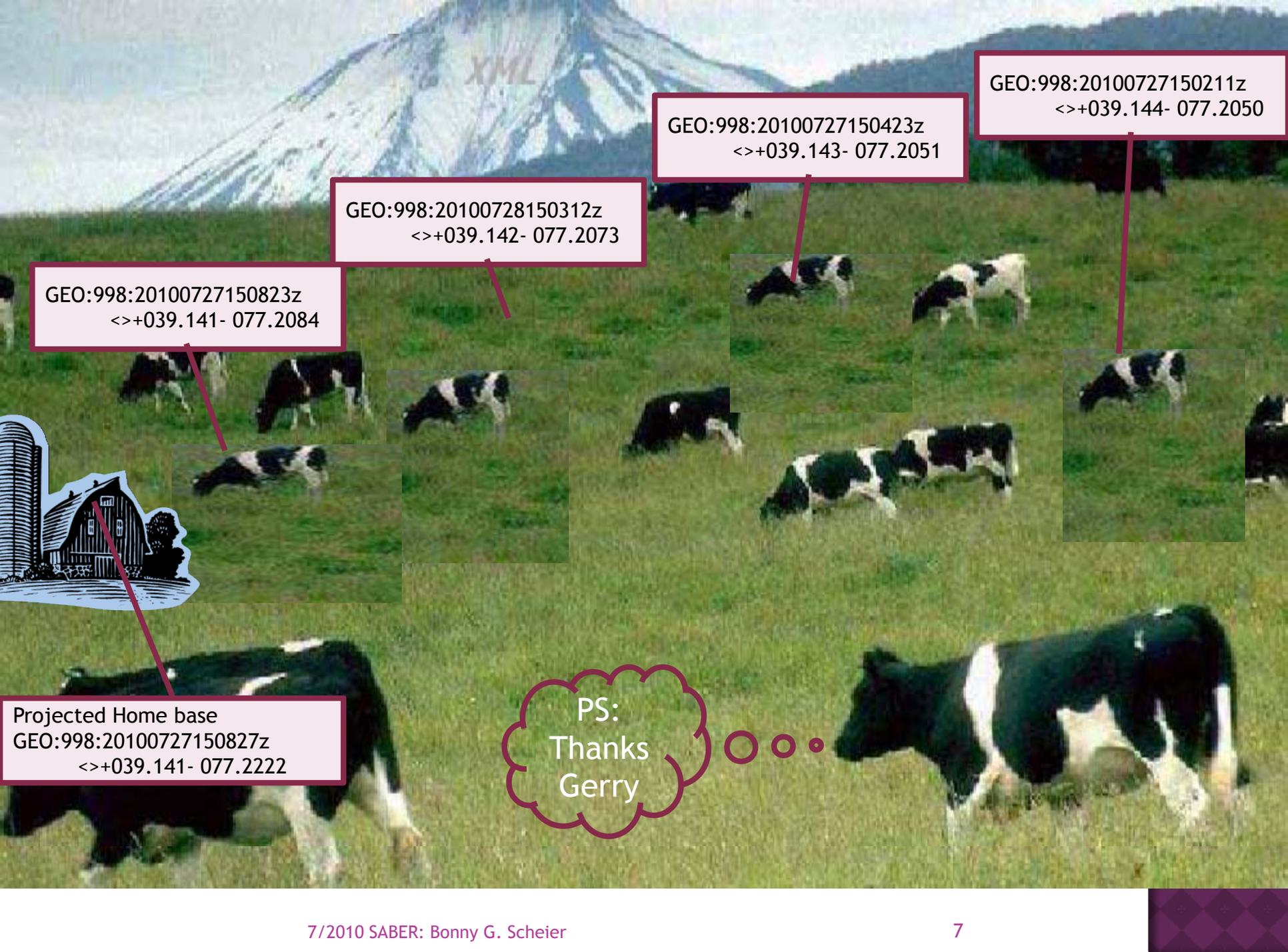
UTILITY OF RECORDING GEO INFORMATION-3

To assist forensic analysts with ability to apply time and motion studies using facial recognition.

Facial Recognition

GEO:998:20100727150211z
<>+039.144- 077.2050

GEO:998:20100727150423z
<>+039.143- 077.2051

GEO:998:20100728150312z
<>+039.142- 077.2073

GEO:998:20100727150823z
<>+039.141- 077.2084

Projected Home base
GEO:998:20100727150827z
<>+039.141- 077.2222

PS:
Thanks
Gerry

PROPOSED RECORD TYPES TO BE UPDATED WITH GEO

The following record types to be updated are:

- Type 10 (Photo/SMT)
- Type 11 (New proposed Photo)
- Type 12 (New Proposed SMT)
- Type 13 (Variable Resolution Latent Image)
- Type 14 (Variable Resolution Fingerprint image)
  Type 15 (Variable Resolution Palm image)
- Type 16 (User Defined record))
- Type 17 (IRIS Image)
- Type 18 (Proposed DNA)
- Type 19 (Proposed Variable Resolution Plantar image)
- Type 20 (Proposed Original Reference Image)
- …
- Type 99 (CBEFF)

GEO FIELD DETAILED DESCRIPTION

The proposed GEO field is an optional field to be added to record types 10-99. The field will be specified using tag # nn.998:

- Short name: GEO

- Long name: GeographicReferenceComplexElement

- This optional field is composed of three optional subfields; one of which must be chosen.

  - GRT ; Long name: GeographicReferenceText
    - Optionally populated, it is a free form text describing a street address or other physical location. This field could be programmatically filled from GPS capture or DEG/DMS entry producing address/location lookup. A/N/S Max ??? characters

  - DEG ; Long Name: DegreeValue
    - Optionally populated, the format shall be ±xxx.xxxx±yyy.yyyy, where x refers to latitude and y refers to longitude. Can be auto captured/converted using GPS signals when available. For example, +039.1455- 077.2057.

  - DMS ; Long Name : DegreeMinuteSecondValue
    - Optionally populated, the format shall be ±xxxDxxMxxS±yyyDyyMyyS, where x refers to latitude and y refers to longitude. Can be auto captured/converted from GPS signals when available. For example, +039D08M44S-077D12M20S.

DOD "GEO_CORD" CURRENTLY SPECIFIED IN TYPE 2

The following is the Department of Defense Electronic Biometric Transmission Specification DIN: DOD_BTF_TS_EBTS_ Mar09_02.00.00 version of "GEO" field and tag numbers into the type 2 specification.

- 4.2.46 Field 2.306 Geographic Coordinate Latitude/Longitude (GEO_CORD)
- Subfields are separated by the <US> character, in the following order:
  - Subfield 2.306_1 Geographic Coordinate Latitude Degree.
  - Subfield 2.306_2 Geographic Coordinate Latitude Minute.
  - Subfield 2.306_3 Geographic Coordinate Latitude Second.
  - Subfield 2.306_4 Geographic Coordinate Longitude Degree.
  - Subfield 2.306_5 Geographic Coordinate Longitude Minute.
  - Subfield 2.306_6 Geographic Coordinate Longitude Second.
- Geographic Coordinate Latitude Degree and Coordinate Longitude Degree subfields are mandatory. If any other subfield is not available, a <US> separator character alone shall be used immediately after the preceding <US> separator character.
- The datum for this field is indicated in Field 2.307 Geographic Coordinate Datum ID.
- 4.2.47 Field 2.307 Geographic Coordinate Datum (DATUM_ID)
- The Geographic Coordinate Datum field shall apply to all coordinate representations (geographic,alternate, UTM).
- NOTE: DOD/FBI tag utilized CALDOJ FBI assigned tag #s 306, 307

FBI ADDED GEO FIELDS IN TYPE 2

The FBI EBTS Version 9.1 (2010) adopted a version of the Department of Defense GEO_CORD and using the same tag #s and added more detailed description and use statements. All three fields are noted as "future capability"

- 2.305 Geographic Coordinate Date Time Stamp (GEO_TIME)(
  - GMT type format CCYYMMDDHHMMSSz

- 2.306 Geographic Coordinate Locator (GEO_CORD).

Identifier Subfield Name	Type	Min Size	Max Size	Special Characters
LATD Latitude Degree	NS	1	9	Period, Plus, Hyphen
LATM Latitude Minute	NS	1	8	Period
LATS Latitude Second	NS	1	8	Period
LOND Longitude Degree	NS	1	10	Period, Plus, Hyphen
LONM Longitude Minute	NS	1	8	Period
LONS Longitude Second	NS	1	8	Period

- 2.307 Geographic Coordinate Datum. DATUM_ID – (Future Capability)
  - This field contains an identifier for the datum used to express the coordinates provided in GEO_CORD. If this field is absent with the GEO_CORD present, then default datum is WGS-84 / NAD-83.

FBI "GEO_CORD" FIELD IN TYPE 2

GEO_CORD 2.306 – Geographic Coordinate Locator. (Future Capability)
This field will be used to associate the location where the biometric record was captured. This field contains the longitude and latitude at which the submission was collected. It consists of Latitude Degree, Latitude Minute, Latitude Second, Longitude Degree, Longitude Minute, and Longitude Second.

- Both Latitude Degree and Longitude Degree are mandatory if this field is present. Decimal values are allowed in each information item. If a decimal value is used in a particular information item, the more granular information item shall be empty (e.g., if Longitude Minutes equals 45.67, Longitude Seconds shall be empty). The data in the Latitude Degree subfield is in degrees in the range of +90 to -90. The data in the Longitude Degree subfield is in the range of +180 to -180. The hyphen representing a negative value is required; the plus sign for positive values may be omitted. The data in the Latitude Minute, Latitude Second, Longitude Minute, and Longitude Second subfields are in the range of 0 – 60. Geographic Coordinate Latitude

- Degree and Coordinate Longitude Degree subfields are mandatory. If any other subfield is not available, a <US> separator character alone shall be used immediately after the preceding <US> separator character.

GEO FIELD DESCRIPTION-ADDITIONAL DISCUSSION-1

For additional committee discussion:

- Suggestion to add GMT (Greenwich Mean Time) as a fourth subfield of GEO

  - Capturing the GMT (ccyymmddhhssZ) would better support time and motion studies drawn from Photo/Video/etc surveillance

  - Suggest GMT capture be recommended to be captured/synchronized with the atomic clock so images captured from multiple capture devices can be relied upon as "synchronized"

  - Suggest placing GMT as first data element since it should apply to all of the other location subfields.

GEO FIELD DESCRIPTION-ADDITIONAL DISCUSSION-2

For additional committee discussion:

- Currently proposed GEO subfields long names may cause XML schema to sort data different from tagged record structure (ie DEG,DMS,GRT).

  - Suggest assigning subfields long names alphabetically to facilitate data debugging and to help keep the structure consistent with the tagged record structure or change the tagged field order since we have this opportunity.

GEO FIELD DESCRIPTION-ADDITIONAL DISCUSSION-3

For additional committee discussion:

- Committee may consider adding a new field that supports the GPS signals as another multiple occurring field.
  - would position Law enforcement community Department of Defense to be able to take advantage of GPS commercial software developments .

RECOMMENDATION

- Add GEO field in record type 10-99 containing 4 subfields
  - GET : GeographicalTime of capture
    GRT ; GeographicReferenceText
  - DEG ; DegreeValue
  - DMS ; DegreeMinuteSecondValue