irisFetch - Bug #742
irisFetch.SAC2Traces: undefined values are not properly detected
10/20/2015 10:20 PM - Chad Trabant

<table>
<thead>
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<th>Start date:</th>
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<td>Due date:</td>
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<tr>
<td>Assignee:</td>
<td>Robert Weekly</td>
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Description
Undefined values of latitude, longitude, elevation, depth, azimuth, dip are not properly detected and set to an empty array.

Sample SAC file is attached.

```matlab
>> t = irisFetch.SAC2Trace('IU.COLA..LHZ.M.2015.274.000000.SAC')
```

```matlab
t =
    network: 'IU'
    station: 'COLA'
    location: ''
    channel: 'LHZ'
    quality: []
    latitude: -12345
    longitude: -12345
    elevation: -12345
    depth: -12345
    azimuth: -12345
    dip: -12345
    sensitivity: []
    sensitivityFrequency: []
    instrument: '-12345'
    sensitivityUnits: []
    data: [3600x1 double]
    sampleCount: 3600
    sampleRate: 1
    startTime: 7.3624e+05
    endTime: 7.3624e+05
    sacpz: []
```

History
#1 - 10/20/2015 10:23 PM - Chad Trabant
Also instrument, as shown in the example.

#2 - 10/20/2015 10:46 PM - Chad Trabant
- Target version set to 2.0.7

#3 - 10/21/2015 06:07 PM - Robert Weekly
- Status changed from New to Feedback

I have changed the format for null/unknown values but would like a clarification...is there a preference for empty strings '' vs empty arrays []?
I could see the benefit of using strings for alpha-numeric data and arrays for floating point data, but there is a good argument to be made for limiting empty strings to only represent empty location codes.
It is an easy change either way.

```
>> t = irisFetch.SAC2Trace('IU.COLA..LHZ.M.2015.274.000000.SAC')
```

```
t =
    network: 'IU'
    station: 'COLA'
    location: ''
    channel: 'LHZ'
    quality: ''
    latitude: []
    longitude: []
    elevation: []
    depth: []
    azimuth: []
    dip: []
    sensitivity: []
    sensitivityFrequency: []
    instrument: []
    sensitivityUnits: ''
    data: [3600x1 double]
    sampleCount: 3600
    sampleRate: 1
    startTime: 7.3624e+05
    endTime: 7.3624e+05
    sacpz: [1x1 struct]
```

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#4 - 10/21/2015 08:48 PM - Chad Trabant
- Status changed from Feedback to In Progress

The latest example shows sensitivityUnits as an empty string whereas before was an empty array. Seems like it should be the null value if it's unknown.

I have changed the format for null/unknown values but would like a clarification...is there a preference for empty strings '' vs empty arrays [] ?

I could see the benefit of using strings for alpha-numeric data and arrays for floating point data, but there is a good argument to be made for limiting empty strings to only represent empty location codes.

It's most important that the null/unknown value is consistent and with minimum potential to be confused with a real value. The empty array seems like the best value for that (barring any true "null" value in MATLAB).
#5 - 10/29/2015 01:49 PM - Chad Trabant

- Status changed from In Progress to Closed

Done.

Files

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<td>10/21/2015</td>
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