### Title:

* [GeoAPI 3.0 SWG] Replace uses of java.util.Date by ISO 19108 TM_CalDate and TM_ClockTime types

### Source:

* [http://jira.codehaus.org/browse/GEO-194](http://jira.codehaus.org/browse/GEO-194)

### Reason for change:

ISO 19115 uses a date object loosely defined in ISO 19103. In an effort to leverage the existing standard Java objects, GeoAPI uses java.util.Date instead of ISO 19103. However this have the following inconvenient:

* java.util.Date always has an accuracy of milliseconds. There is no way to differentiate January 1st from January 1st 00:00:00.000 for instance.

* java.util.Date and ISO 19103 Date overlap with ISO 19108 (Temporal Schema).

* java.util.Date is likely to be superseded by a new time API in JDK8.

GeoAPI would gain consistency by using the ISO 19108 TM_CalDate and TM_ClockTime types at every places where a java.util.Date object was
used. Actually, this need was anticipated at the GeoAPI 3.0.0 release, so all affected methods already have a note in their Javadoc about this potential change.

**Summary of change:**

* All the following methods, which currently return java.util.Date, would need their return type to be changed. All those method contains a Javadoc warning about this anticipated change.

```java
CalendarDate Metadata.getDateStamp();
DateAndTime Requirement.getExpiryDate();
DateAndTime RequestedDate.getRequestedDateOfCollection();
DateAndTime RequestedDate.getLatestAcceptableDate();
DateAndTime Event.getTime();
CalendarDate Citation.getEditionDate();
CalendarDate CitationDate.getDate();
DateAndTime StandardOrderProcess.getPlannedAvailableDateTime();
DateAndTime Usage.getUsageDate();
DateAndTime ProcessStep.getDate();
CalendarDate MaintenanceInformation.getDateOfNextUpdate();
DateAndTime Element.getDates();
CalendarDate Datum.getRealizationEpoch();
DateAndTime TemporalDatum.getOrigin();
```

**Consequences if not approved:**

Developers would continue to use a type unsuitable to many needs. This type may possibly become outdated in future Java releases, and will overlap ISO 19108.

**Clauses affected:**

* Table 1 in section 8.1.1.
Section 8.4

**Additional Documents affected:**

Above-cited Java source files.

**Supporting Documentation:**

**Comments:**

**Status:**

Assigned

**Assigned To:**

GeoAPI 3.0 SWG

**Disposition:**

Referred and Posted