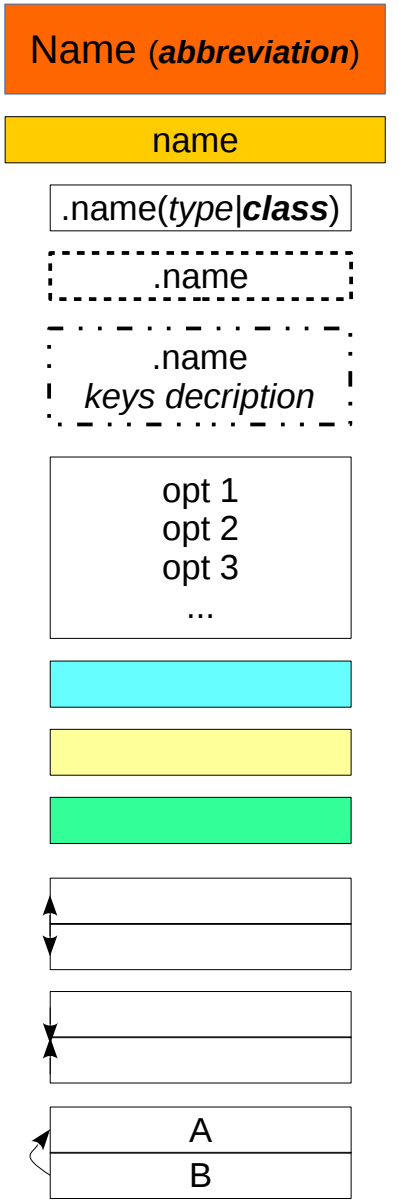
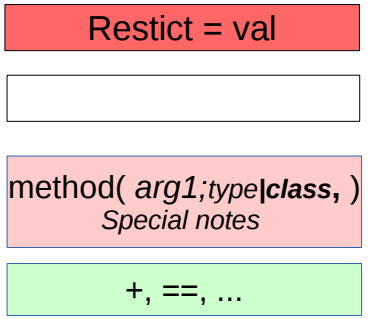
Notes on classes and functions in obspy

(Disclaimer, the attributes of the classes displayed herein may not be complete and the methods listed most certainly are not)

Symbols and colors used herein:

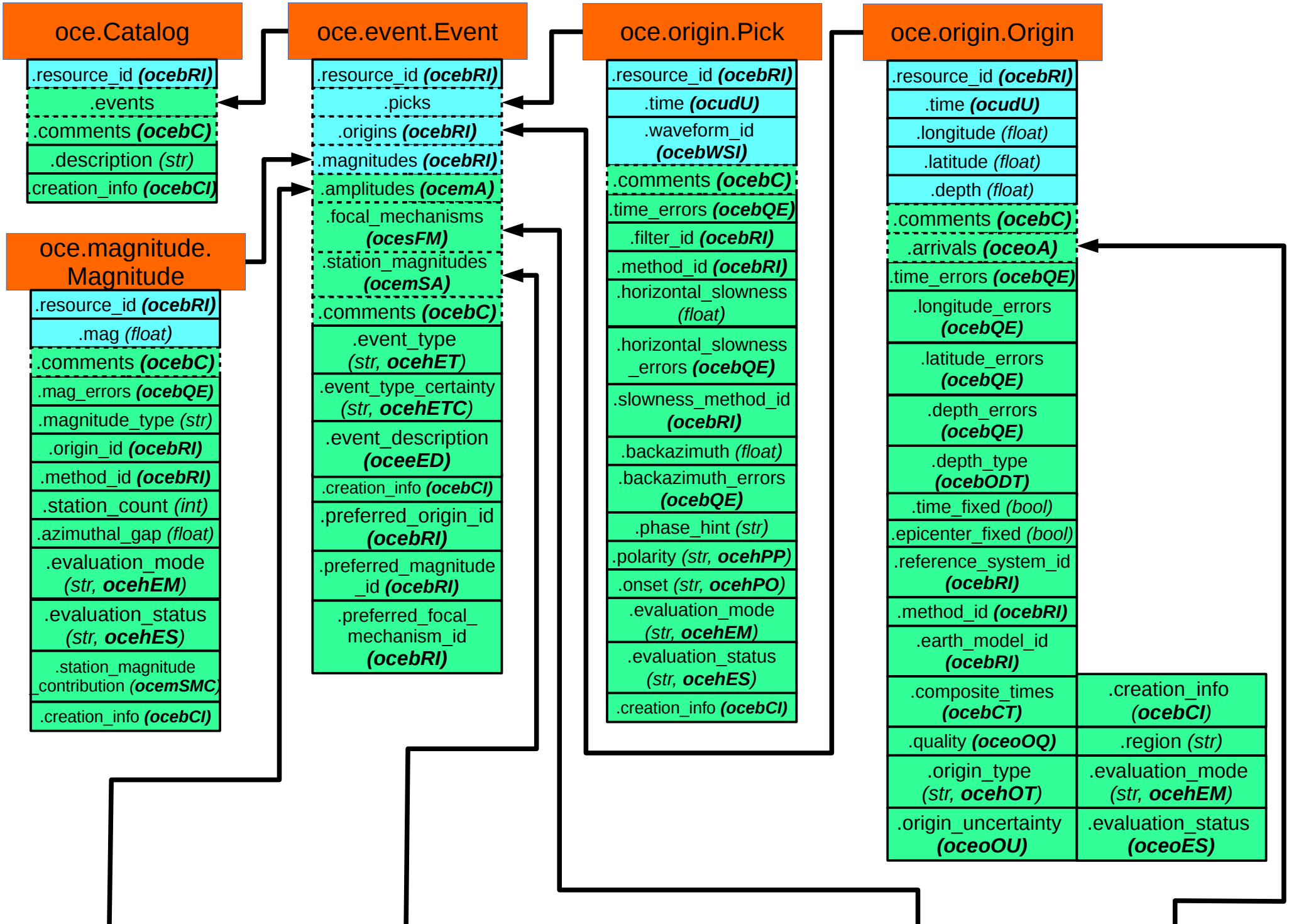


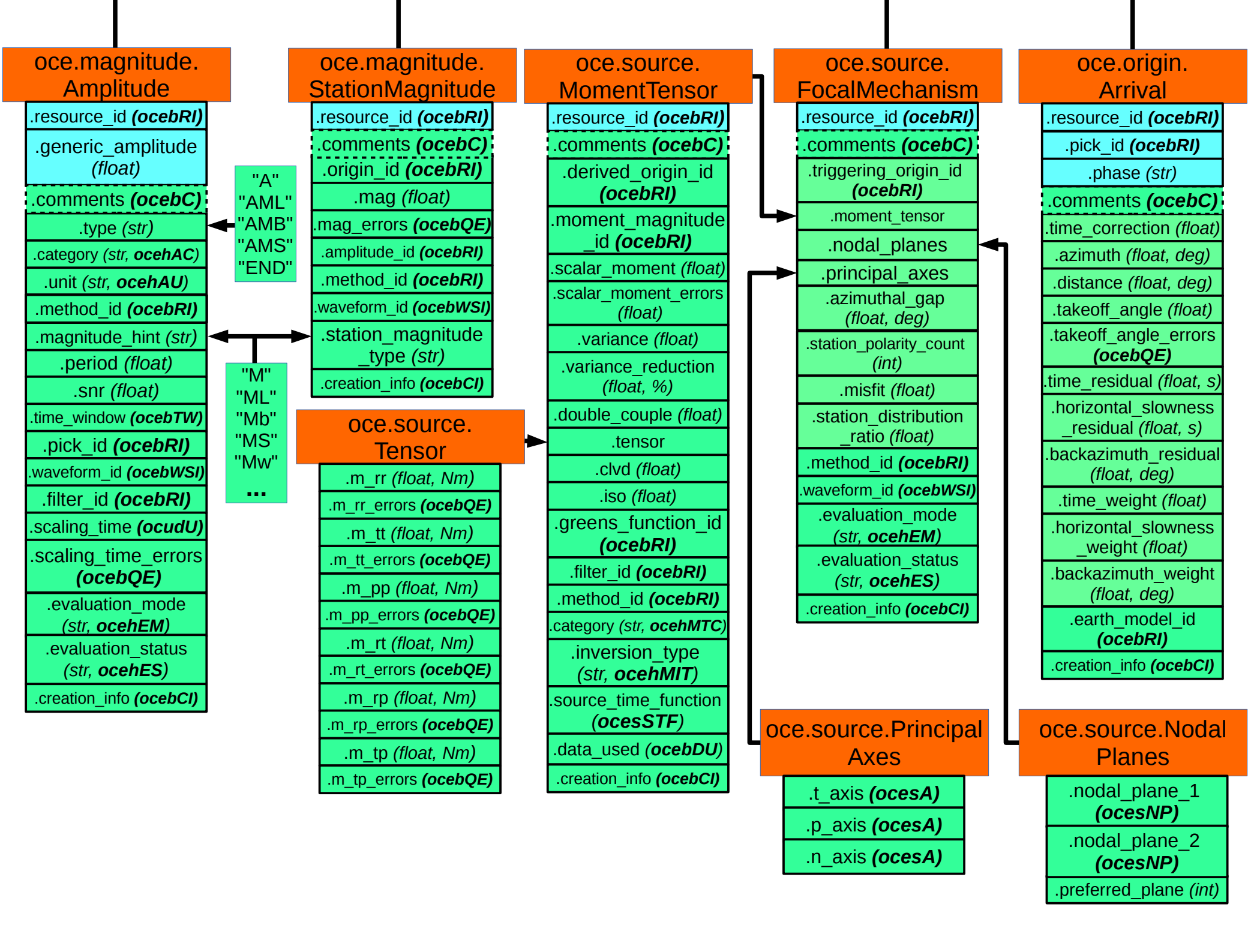
- Class
- Base class (attributes inherrited from)
- scalar attribute
- list attribute
- dictionary attribute
- list of available options
- mandatory attribute
- fixed attribute
- optional attribute
- mutually inclusive attribute
- mutually exclusive attribute
- B requires A



- Restictions
- Extension (uncolored)
- method
- operators

obspy.core.event.Catalog




oce.magnitude.
Amplitude
.resource_id (ocebRI)
.generic_amplitude
(float)
.comments (ocebC)
.type (str)
.category (str, ocehAC)
.unit (str, ocehAU)
.method_id (ocebRI)
.magnitude_hint (str)
.period (float)
.snr (float)
.time_window (ocebTW)
.pick_id (ocebRI)
.waveform_id (ocebWSI)
.filter_id (ocebRI)
.scaling_time (ocudU)
.scaling_time_errors
(ocebQE)
.evaluation_mode
(str, ocehEM)
.evaluation_status
(str, ocehES)
.creation_info (ocebCI)
"A"
"AML"
"AMB"
"AMS"
"END"
"M"
"ML"
"Mb"
"MS"
"Mw"
...
oce.magnitude.
StationMagnitude
.resource_id (ocebRI)
.comments (ocebC)
.origin_id (ocebRI)
.mag (float)
.mag_errors (ocebQE)
.amplitude_id (ocebRI)
.method_id (ocebRI)
.waveform_id (ocebWSI)
.station_magnitude
_type (str)
.creation_info (ocebCI)
oce.source.
Tensor
.m_rr (float, Nm)
.m_rr_errors (ocebQE)
.m_tt (float, Nm)
.m_tt_errors (ocebQE)
.m_pp (float, Nm)
.m_pp_errors (ocebQE)
.m_rt (float, Nm)
.m_rt_errors (ocebQE)
.m_rp (float, Nm)
.m_rp_errors (ocebQE)
.m_tp (float, Nm)
.m_tp_errors (ocebQE)
oce.source.
MomentTensor
.resource_id (ocebRI)
.comments (ocebC)
.derived_origin_id
(ocebRI)
.moment_magnitude
_id (ocebRI)
.scalar_moment (float)
.scalar_moment_errors
(float)
.variance (float)
.variance_reduction
(float, %)
.double_couple (float)
.tensor
.clvd (float)
.iso (float)
.greens_function_id
(ocebRI)
.filter_id (ocebRI)
.method_id (ocebRI)
.category (str, ocehMTC)
.inversion_type
(str, ocehMIT)
.source_time_function
(ocesSTF)
.data_used (ocebDU)
.creation_info (ocebCI)
oce.source.
FocalMechanism
.resource_id (ocebRI)
.comments (ocebC)
.triggering_origin_id
(ocebRI)
.moment_tensor
.nodal_planes
.principal_axes
.azimuthal_gap
(float, deg)
.station_polarity_count
(int)
.misfit (float)
.station_distribution
_ratio (float)
.method_id (ocebRI)
.waveform_id (ocebWSI)
.evaluation_mode
(str, ocehEM)
.evaluation_status
(str, ocehES)
.creation_info (ocebCI)
oce.origin.
Arrival
.resource_id (ocebRI)
.pick_id (ocebRI)
.phase (str)
.comments (ocebC)
.time_correction (float)
.azimuth (float, deg)
.distance (float, deg)
.takeoff_angle (float)
.takeoff_angle_errors
(ocebQE)
.time_residual (float, s)
.horizontal_slowness
_residual (float, s)
.backazimuth_residual
(float, deg)
.time_weight (float)
.horizontal_slowness
_weight (float)
.backazimuth_weight
(float, deg)
.earth_model_id
(ocebRI)
.creation_info (ocebCI)
oce.source.Principal
Axes
.t_axis (ocesA)
.p_axis (ocesA)
.n_axis (ocesA)
oce.source.Nodal
Planes
.nodal_plane_1
(ocesNP)
.nodal_plane_2
(ocesNP)
.preferred_plane (int)

selected classes in various modules in obspy.core.event ***(oce)***

oce.base.ResourceIdentifier ***(ocebRI)***

- .id *(str,* (smi|quakeml): [\w\d][\w\d\-\.*\(\)_~'] {2,}/[\w\d\-\.*\(\)_~'] [\w\d\-\.*\(\)\+\?_~'=, ;#/&]*)*
- .prefix *(str)*
- .referred_object *(Python object)*

oce.base.QuantityError ***(ocebQE)***

- .uncertainty *(float)*
- .lower_uncertainty *(float)*
- .upper_uncertainty *(float)*
- .confidence_level *(float)*

oce.base.CompositeTime ***(ocebCT)***

- .year *(int)*
- .year_errors ***(ocebQE)***
- .month *(int)*
- .month_errors ***(ocebQE)***
- .day *(int)*
- .day_errors ***(ocebQE)***
- .hour *(int)*
- .hour_errors ***(ocebQE)***
- .minute *(int)*
- .minute_errors ***(ocebQE)***
- .second *(float)*
- .second_errors ***(ocebQE)***

oce.origin.OriginQuality ***(oceoOQ)***

- .associated_phase_count *(int)*
- .used_phase_count *(int)*
- .associated_station_count *(int)*
- .used_station_count *(int)*
- .depth_phase_count *(int)*
- .standard_error *(float, s)*
- .azimuthal_gap *(float)*
- .secondary_azimuthal_gap *(float, deg)*
- .ground_truth_level *(str)*
- .minimum_distance *(float, deg)*
- .maximum_distance *(float, deg)*
- .median_distance *(float, deg)*

oce.source.NodalPlane ***(ocesNP)***

- .strike *(float)*
- .strike_errors ***(oceQE)***
- .dip *(float)*
- .dip_errors ***(oceQE)***
- .rake *(float)*
- .rake_errors ***(oceQE)***

oce.base.CreationInfo ***(ocebCI)***

- .agency_id *(str)*
- .agency_uri ***(ocebRI)***
- .author *(str)*
- .author_uri ***(ocebRI)***
- .creation_time ***(ocudU)***
- .version *(str)*

oce.base.WaveformStreamID ***(ocebWSI)***

- .network_code *(str)*
- .station_code *(str)*
- .location_code *(str)*
- .channel_code *(str)*
- .resource_uri ***(ocebRI)***

oce.origin.OriginUncertainty ***(oceoOU)***

- .horizontal_uncertainty *(float, m)*
- .min_horizontal_uncertainty *(float,m)*
- .max_horizontal_uncertainty *(float, m)*
- .azimuth_max_horizontal_uncertainty *(float)*
- .confidense_ellipsoid ***(ocebCE)***
- .preferred_description *(str,* ***ocehOUD****)*
- .confidence_level *(float)*

oce.source.Axis ***(ocesA)***

- .azimuth *(float)*
- .azimuth_errors ***(oceQE)***
- .plunge *(float)*
- .plunge_errors ***(oceQE)***
- .length *(float)*
- .length_errors ***(oceQE)***

oce.base.Comment ***(ocebC)***

- .text *(str)*
- .resource_id ***(ocebRI)***
- .creation_info ***(ocebCI)***

oce.base.ConfidenceEllipsoid ***(ocebCE)***

- .semi_major_axis_length *(float, m)*
- .semi_minor_axis_length *(float, m)*
- .semi_intermediate_axis_length *(float, m)*
- .major_axis_plunge *(float, deg)*
- .major_axis_azimuth *(float, deg)*
- .major_axis_rotation *(float, deg)*

oce.magnitude.StationMagnitudeContribution ***(ocemSMC)***

- .station_magnitude_id ***(ocebRI)***
- .residual *(float)*
- .weight *(float)*

oce.base.DataUsed ***(ocebDU)***

- .wave_type *(str,* ***ocehDW****)*
- .station_count *(int)*
- .component_count *(int)*
- .shortest_period *(float)*
- .longest_period *(float)*

oce.event.SourceTimeFunction ***(oceeED)***

- .type *(str,* ***ocehSF****)*
- .duration *(float, s)*
- .rise_time *(float, s)*
- .decay_time *(float, s)*

oce.base.TimeWindow ***(ocebTW)***

- .begin *(float, s)*
- .end *(float, s)*
- .reference ***(ocudU)***

oce.event.EventDescription ***(oceeED)***

- .text *(str)*
- .type *(str,* ***ocehEDT****)*

selected enumeration types in obspy.core.event.header ***(oceh)***

oceh.EventType ***(ocehET)***

- "accidental explosion"
- "acoustic noise"
- "anthropogenic event"
- "atmospheric event"
- "avalanche"
- "blasting levee"
- "boat crash"
- "building collapse"
- "cavity collapse"
- "chemical explosion"
- "collapse"
- "controlled explosion"
- "crash"
- "debris avalanche"
- "earthquake"
- "experimental explosion"
- "explosion"
- "fluid extraction"
- "fluid injection"
- "hydroacoustic event"
- "ice quake"
- "induced or triggered event"
- "industrial explosion"
- "landslide"
- "meteorite"
- "mine collapse"
- "mining explosion"
- "not existing"
- "not reported"
- "nuclear explosion"
- "other event"
- "plane crash"
- "quarry blast"
- "reservoir loading"
- "road cut"
- "rock burst"
- "rockslide"
- "slide"
- "snow avalanche"
- "sonic blast"
- "sonic boom"
- "thunder"
- "train crash"
- "volcanic eruption"

oceh.Event DescriptionType ***(ocehEDT)***

- "felt report"
- "Flinn-Engdahl region"
- "local time"
- "tectonic summer"
- "nearest cities"
- "earthquake names"
- "region names"

oceh.EventType Certainty ***(ocehETC)***

- "suspected"
- "known"

oceh.PickPolarity ***(ocehPP)***

- "positive"
- "negative"
- "undecidable"

oceh.PickOnset ***(ocehPO)***

- "emergent"
- "impulsive"
- "questionable"

oceh.Evaluation Mode ***(ocehEM)***

- "manual"
- "automatic"

oceh.OriginDepth Type ***(ocehODT)***

- "from location"
- "from moment tensor inversion"
- "from modeling of broad-band P waveforms"
- "constrained by depth phases"
- "constrained by direct phases"
- "constrained by depth and direct phases"
- "operator assigned"
- "other"

oceh.OriginType ***(ocehOT)***

- "hypocenter"
- "centroid"
- "amplitude"
- "macroseismic"
- "rupture start"
- "rupture end"

oceh.Evaluation Status ***(ocehES)***

- "preliminary"
- "confirmed"
- "reviewed"
- "final"
- "rejected"
- "reported"

oceh.MomentTensor Category ***(ocehMTC)***

- "teleseismic"
- "regional"

oceh.OriginUncertainty Description ***(ocehOUD)***

- "horizontal uncertainty"
- "uncertainty ellipse"
- "confidence ellipsoid"

oceh.Amplitude Category ***(ocehAC)***

- "point"
- "mean"
- "duration"
- "period"
- "integral"
- "other"

oceh.Amplitude Unit ***(ocehAU)***

- "m"
- "s"
- "m/s"
- "m/(s*s)"
- "m*s"
- "dimensionless"
- "other"

oceh.MTInversion Type ***(ocehMIT)***

- "general"
- "zero trace"
- "double couple"

oceh.SourceTimeFunc itonType ***(ocehSF)***

- "box car"
- "triangle"
- "trapezoid"
- "other"

oceh.DataUsedWave Type ***(ocehDW)***

- "P waves"
- "body waves"
- "surface waves"
- "mantle waves"
- "combined"
- "unknonw"