

Aggradation	Vertical build up of a sedimentary sequence. Usually occurs when there is a relative rise in sea level produced by subsidence and/or eustatic sea-level rise, and the rate of sediment influx is sufficient to maintain the depositional surface at or near sea level (i.e. carbonate keep-up in a HST or clastic HST). Occurs when sediment flux = rate of sea-level rise. Produces aggradational stacking patterns in parasequences when the patterns of facies at the top of each parasequence are essentially the same.
Accommodation	Space available for sediment accumulation. Relative sea-level change determines whether accommodation decreases or increases.
Base level	The surface to which sediment accumulation fills up to or erodes down to. Below it, sediments will be deposited and above it, sediments will be eroded.
Basin floor fan	A portion of the LST or FSST characterized by deposition of submarine fans on the lower slope or basin floor. Fan formation is associated with the erosion of canyons into the slope and the incision of fluvial valleys into the shelf. Siliciclastic sediment bypasses the shelf and slope through the valleys and canyons to feed the basin-floor fan.
Basinward Shift in Facies.	When viewed in cross-section, a shifting of all facies towards the centre of a basin. Note that this is a lateral shift in facies, such that in vertical succession, a basinward shift in facies is characterized by a shift to shallow facies (and not a vertical shift to more basinward or deeper-water facies).
Bedset	Two or more superposed beds characterized by the same composition, texture, and sedimentary structures. Thus, a bedset forms the record of deposition in an environment characterized by a certain set of depositional processes. In this way, bedsets are what define sedimentary facies.
Clinofolds	Inclined surfaces whose dip lessens at their top and base until they run tangential to the horizontal.
Condensation.	Slow net rates of sediment accumulation. Stratigraphic condensation can occur not only through a cessation in the supply of sediment at the site of accumulation, but also in cases where the supply of sediment to a site is balanced by the rate of removal of sediment from that site. Where net sediment accumulation rates are slow, a variety of unusual sedimentologic features may form, including burrowed horizons, accumulations of shells, authigenic minerals (such as phosphate, pyrite, siderite, glauconite, etc.), early cementation and hardgrounds, and enrichment in normally rare sedimentary components, such as volcanic ash and micrometeorites.
Condensed Section	A thin marine stratigraphic interval characterized by very slow depositional rates (<1-10 mm/yr). It consists of hemipelagic and pelagic sediments, starved of indigenous materials, deposited on the middle to outer shelf, slope, and basin floor during a period of maximum relative sea-level rise and maximum transgression of the shoreline. It first begins to form in more distal slope and basinal environments, and as the shoreline backsteps landward, gradually expands in its coverage to include not only the basin but all of the slope and part of the shelf as well. Commonly the upper layer of the TST is a condensed section which is associated with the MFS where it is overlain by the downlapping HST.

Conformity	Bedding surface separating younger from older strata, along which there is no evidence of subaerial or submarine erosion or nondeposition and along which there is no evidence of a significant hiatus. Unconformities (sequence boundaries) and flooding surfaces (parasequence boundaries) will pass laterally into correlative conformities, most commonly in deeper marine sediments.
Correlative conformity	Surface that correlates laterally with an unconformity. It is important for dating the SB. It lies at the base of any sediments deposited during relative sea-level fall.
Diachronous	A lithology or facies is diachronous if it does not represent the same period of time everywhere
Discordance	The lack of parallelism of strata to sequence boundaries, with consequent stratal terminations against the boundary surfaces.
Downlap	A base-discordant relation in which relatively steeply inclined strata terminate downdip against an older surface, which may be horizontal or shallowly inclined. Downlap is associated with progradation. Prograding units may not terminate abruptly at the downlap surface but extend basinwards as a thin veneer. As a result, the downlap surface is associated with a condensed interval.
Erosional truncation	This is represented by termination of strata against an overlying erosional surface (erosional truncation of reflectors on seismic). Toplap often terminates beneath erosional truncation.
Falling Stage System Tract (FSST)	Sediment deposited during falling relative sea-level. There is only a FSST during a forced regression. Progradational . Deposition lower down the facies than the underlying HST. Fluvial incision on the coastal plain, progressive subaerial exposure on the shelf, sediment bypass on the slope + canyon formation, deposition of basin floor fans (turbidites). Clues: low microfossil abundance, high $\delta^{18}\text{O}$ values, onshore erosion, lack of coeval coastal plain deposits, clinofolds thinning basinwards, foreshortened stratigraphy.
Flood-tidal delta	Deposit of sand-sized particles created as sediment accumulates from the tidal inlet. Flood tides transport sediment through the tidal inlet and over a flood ramp where currents slow and dissipate. Generally, flood-tidal deltas along microtidal coasts are multi-lobate and unaffected by ebbing currents. Compare to tidal delta.
Foreland basin	Although mountain belts tend to be associated with the uplift of rock material to several kilometres in height, they are bordered by regions of subsidence called <i>foreland sedimentary basins</i> . These basins are "wedge-shaped" in cross-section with a depth that gradually decreases from the mountain belt towards the adjacent craton.
Foreshortened stratigraphy	Occurs in the FSST, where the thickness of the parasequences is considerably less than (biostratigraphical) estimates of paleowater depth.
Genetically related	In a parasequence, this means that all facies within the parasequence were deposited in lateral continuity to one another, that is, Walther's Law holds true within a parasequence.

Glaucinite	Glaucinites $(K,Na)(Fe,Al,Mg)_2(Si,Al)_4O_{10}(OH)_2$ are iron-rich minerals found in sandstones, limestones, and siltstones. These sediments are associated with the widespread condensed sections that are related to MFSs. These often merge landward with transgressive surfaces. Glaucinites are associated with slow rates of sediment accumulation and occur in conjunction with organic matter, and fecal pellets that fill Glossifungites burrows within an oxidizing setting. Examples of glauconite rich sediments have ages that range from the Precambrian to the present and they are associated with the MFSs of parasequence boundaries that occur just above transgressive surfaces throughout the geologic column.. These glauconite rich sediments are often called "greensands" and are particularly common in the Cretaceous sediments of the United Kingdom and the United States. Glaucinite forms in situ on the present day continental shelf.
Glossifungites	Glossifungites are an assemblage of burrows (vertical, U-shaped, or sparsely branched) that occur in firm, but not lithified siliciclastic and/or carbonate muds and silts of the intertidal and shallow marine where scouring has often removed the unconsolidated layers of the sediment surface. The surfaces on which Glossifungites occur are often formed during regression and sea level fall or just after the initial transgressive phase immediately following sea level lowstands.
Hiatus	The total interval of geologic time which is not represented by strata at a specified position along a given stratigraphic surface. Hiatuses may be erosional or non depositional. Seismically, hiatuses are indicated by stratal terminations (i.e. onlap, downlap, toplap or erosional truncation). If the hiatus encompasses a measurable interval of geologic time, the stratigraphic surface is an unconformity.
High-Frequency Cycle.	A term applied to a cycle of fourth order or higher, that is, having a period of less than 1 million years. Parasequences and sequences can each be considered high-frequency cycles when their period is less than 1 million years.
Highstand Systems Tract (HST)	Systems tract downlapping onto a MFS, overlain by a SB, and characterized by an aggradational to progradational parasequence set. It forms during the late part or a stillstand of a sea-level rise, or during the early part of a sea-level fall. The base of this systems tract is formed by the MFS (MFS) over which the HST sediments prograde and aggrade . The clinofolds onlap the sequence boundary in a landward direction and downlap the top of the TST and/or LST in a basinward direction. Clues : increasing microfossil abundance and palaeobathymetry, bioturbation in distal area, low $\delta^{18}O$.
Incised valley	The channel or valley formed by fluvial systems that extend their channels basinward and erode into underlying strata in response to a relative fall in sea level. Incised valleys can be up to several hundred feet deep and range in width from a half mile to many tens of miles. Timing of the incision of the incised valley will often be within the FSST, while the fill of the incision will tend to occur during the following LST to be capped by a TS.

Inflection point	<p>The point at which a curve or arc changes from concave to convex, or vice versa. The "Inflection Point" on a sinusoidal sea level curve is the location at which the rate of sea level fall or rise is at its most rapid.</p> <p>A sequence boundary (SB) will usually occur prior to the inflection point of a relative fall but at least by this point. A condensed section will usually accumulate prior to or at least coincide with the inflection point (TS) of a transgression.</p>
Lowstand Systems Tract (LST)	<p>Package of sediment deposited between the minimum relative sea-level and the pronounced increase in accommodation space. Parasequences are progradational to aggradational. Two components: the lowstand wedge downdip and the incised valley fills updip.</p> <p>Clues: decreasing abundance of microfossils and decreasing paleobathymetry, fluvial incisement, turbidites.</p>
Marine Flooding Surface	<p>A surface separating younger from older strata, across which there is evidence of an abrupt increase in water depth. It can be treated as a time-line. It may be accompanied by minor submarine erosion or nondeposition, with a minor hiatus indicated. Flooding surfaces form the boundaries between parasequences.</p>
Maximum flooding surface (MFS)	<p>Marine flooding surface separating the underlying TST from the overlying prograding HST. The MFS lies at the turnaround from retrogradational to progradational parasequence stacking, although this turnaround may be gradational and characterized by aggradational stacking. This surface also marks the deepest water facies within a sequence and corresponds to the widest landward extent of marine facies. In the coastal plain, thick coals and high proportion of overbank deposits.</p> <p>Seismically, it is often expressed as a downlap surface (i.e. overlying surfaces downlap onto it).</p> <p>The chronostratigraphic significance of the MFS is that landward it represents shorter period of time, while seaward a longer period of time. Thus the upper surface of a MFS transgresses time or is diachronous.</p> <p>An MFS is often characterized by the presence of radioactive (high gamma ray log) and often organic rich shales, glauconite, hardgrounds and burrows, and widespread thin bedded concentrations of fauna (condensed sections) with high abundance and diversity. An MFS can often be the only portion of a sedimentary cycle which is rich in fauna.</p>
Metre-Scale Cycle.	<p>A term applied to a cycle with a thickness of a couple of metres or less. Parasequences and sequences can each be considered metre-scale cycles when they are thinner than a couple of metres.</p>
Normal regression	<p>Shoreface progradation due to excess sediment supply.</p>
Onlap	<p>A base-discordant relation in which horizontal or low-angle strata terminate progressively against a more steeply inclined surface (the onlap surface), or in which initially inclined strata terminate progressively updip against a surface of greater initial inclination.</p>
Parasequence Set.	<p>Succession of genetically related parasequences that have the same stacking pattern (aggradational, progradational or retrogradational), and typically bounded by major marine flooding surfaces and their correlative surfaces. Parasequence set boundaries may coincide with sequence boundaries in some cases.</p>

Parasequence.	Relatively conformable (that is, containing no major unconformities), genetically related succession of beds or bedsets bounded by marine-flooding surfaces or their correlative surfaces. Parasequences are typically shallowing-upward cycles. Thus the flooding surfaces are usually identified by abrupt and correlatable changes of the grain size of the sediments on either side of that flooding surface. Commonly metres (shallow marine) to tens of metres (deltaic) thick and representing durations of tens to hundreds of thousands of years.
Progradation	Lateral outbuilding, or progradation, of strata in a seaward direction. A progradational parasequence set is a parasequence set in which successively younger parasequences are deposited farther basinward; overall the rate of deposition is greater than the rate of accommodation.
Ravinement erosion surface	A time transgressive or diachronous subaqueous erosional surface resulting from nearshore marine and shoreline erosion associated with a sea-level rise. This erosional surface parallels the migration of the shoreface "razor" across previously deposited coastal deposits. Burrows in this surface are often filled by sediments deposited during a sea-level rise.
Ravinement lag	Lag of coarse-grained material winnowed by wave erosion, left behind by barrier island migration during transgression.
Retrogradation	The movement of coastline landward in response to a transgression. This can occur during a sea-level rise with low sediment flux. A retrogradational parasequence set is a parasequence set in which successively younger parasequences are deposited farther landward in a backstepping pattern. Overall, the rate of deposition is less than the rate of accommodation. Note that individual parasequences still prograde.
Sequence Boundaries (SB)	These boundaries are the product of a fall in sea level that erodes the subaerially exposed sediment surface of the earlier sequence or sequences. Updip, they are unconformities showing evidence of subaerial exposure or incision. These boundaries are diachronous, capping the previous HST (interfluvial paleosols). Easily identified on seismic: erosional truncation (updip) and toplap (downdip) below the SB, onlap on top of it.
Sequence.	Relatively conformable (that is, containing no major unconformities), genetically related succession of strata bounded by unconformities or their correlative conformities (SBs). It is composed of a succession of genetically linked deposition systems (systems tracts) and is interpreted to be deposited between eustatic-fall inflection points. The majority of sequences are third-order cycles.
Systems Tract.	Linkage of contemporaneous depositional systems, which are three-dimensional assemblages of lithofacies. For example, a systems tract might consist of fluvial, deltaic, and hemipelagic depositional systems. Systems tracts are defined by their position within sequences and by the stacking pattern of successive parasequences.
Tidal delta	A delta formed at the mouth of a tidal inlet on both the seaward and lagoon sides of a barrier island or baymouth bar by changing tidal currents that sweep sand in and out of the inlet.
Toplap	Termination of strata against an overlying surface mainly as a result of nondeposition (sedimentary bypassing) with perhaps only minor erosion. Occurs where there is progradation but no aggradation (when relative sea-level is static). Sediments bypass the zone of toplap to be deposited further basinward (successive terminations lie progressively basinward). Toplap is evidence of a nondepositional hiatus.

Transgression	A landward movement of the shoreline indicated by a landward migration of the littoral facies in a given stratigraphic unit. This occurs when the rate of sea level rise landward exceeds the rate of sediment input and causes an increase in accommodation, initiating the development of a transgressive surface over which the transgressive sediments of the TST onlap and retrograde.
Transgressive Surface (TS)	Marine flooding surface separating the underlying LST from the overlying TST. The TS, in most siliciclastic and some carbonate successions, marks the onset of the period when the rate of creation of accommodation space is greater than the rate of sediment supply. In positionally updip areas, the transgressive surface is commonly merged with the sequence boundary, with all of the time represented by the missing LST and FSST contained within the unconformity. Where the rate of sediment supply is low the transgressive surface may merge landward with the MFS. The transgressive surface, like all of the major flooding surfaces within the TST, may display evidence of stratigraphic condensation or slow net deposition, such as burrowed surfaces, hardgrounds, mineralization, and fossil accumulations, pebble lag. The TS often marks the base of the most prominent onlap. In areas of high sediment supply, e.g. on rimmed carbonate platforms, the rate of sediment supply may keep pace with the rate of relative sea-level rise and thus the TS will mark a change from a progradational to an aggradational parasequence stacking patterns.
Transgressive Systems Tract (TST)	Systems tract overlying a transgressive surface, overlain by a MFS, and characterized by a retrogradational parasequence set and a deepening-upward trend. Its base is the position of maximum regression. The lower TST is comprised of the filling of incised valleys. The upper TST re-establishes shallow-marine shoreface systems over the filled valleys and the interfluvies. Incised valleys may become estuaries. Downdip, offshore mudstones overly delta front heterolithic. Backstepping clinofolds thicken and onlap landwards.
Volumetric partitioning	The concept of volumetric partitioning or sediment balance states that if sediment is being deposited in one part of the depositional system, it is not available for another part.
Whitecaps	Bleached zone capping foreshore sands at the top of parasequences in the Book Cliffs. The bleaching was caused by acid groundwaters that formed beneath coal swamps.