

SEDIMENTOLOGY OF THE NEOGENE ALMERÍA BASINS: AN ILLUSTRATED GUIDE.

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The Río Almanzora Basin

The upper Tortonian coral reefs

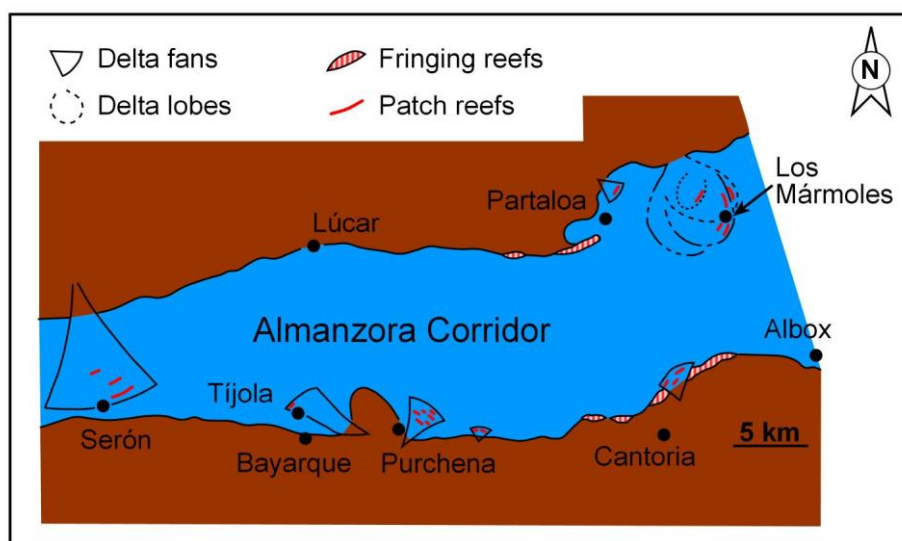
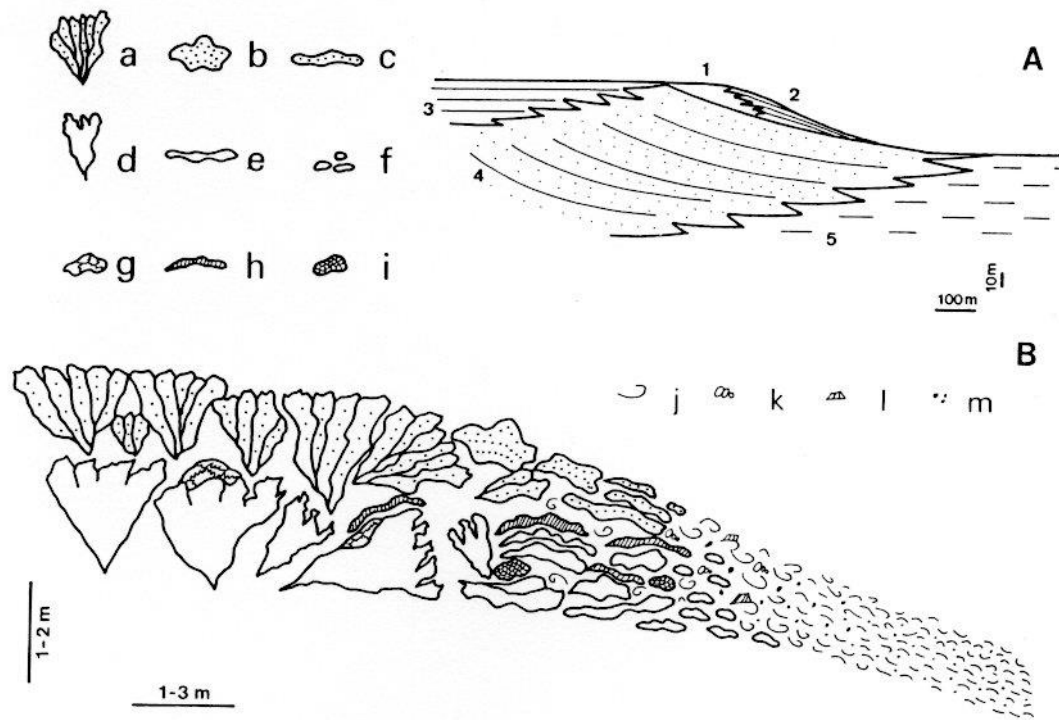


Figure 42. Palaeogeography of the Almanzora River Corridor during the upper Tortonian (after Braga and Martín, 1988).

Reefs on delta lobes

Figure 43. (A): Reefs on abandoned delta-lobes at Los Mármoles. 1, reef-core framework; 2, reef slopes; 3, delta plain (silts cut by conglomerate channels); 4, delta front (sands and conglomerates); 5, prodelta (silts). (B): Simplified scheme of the generic and morphological distribution of corals in the transition from reef to reef-slope facies within a *Porites-Tarbellastraea* succession. A, coniform *Tarbellastraea* colonies; b, flattish, amorphous *Tarbellastraea* colonies; c, laminar *Tarbellastraea* colonies; d, coniform *Porites* colonies; e, laminar *Porites* colonies; f, *Porites* fragments; g, small, hemispherical *Platygyra* colonies; h, laminar *Palaeoplesiastraea* colonies; I, hemispherical-ellipsoidal *Siderastraea* colonies; j, bivalves; k, gastropods; l, barnacles; m, articulate corallines (after Martín et al., 1989). →



Photograph 255.- Abandoned delta lobe covered by a coral-reef limestone deposit (Almanzora-river Corridor: Los Mármoles).



Photograph 256.- Close view of the coral limestone (Almanzora-river Corridor: Los Mármoles).



Photograph 257.- In situ *Porites* growths embedded in mud (silt). Coniform colonies consisting of fused thick branches dominate (Almanzora-river Corridor: Los Mármoles).



Photograph 258.- *Porites* colonies settled on silts (Almanzora-river Corridor: Los Mármoles).



Photograph 259.- *Porites* (P)-*Tarbellastraea* (T) cycle (succession). The *Porites* bed is silt rich; in the *Tarbellastraea* bed the silt is absent (Almanzora-river Corridor: Los Mármoles).



Photograph 260.- Coniform *Tarbellastraea* colony consisting of fused thick, fan-array branches (Almanzora-river Corridor: Los Mármoles).

Reefs on fan deltas

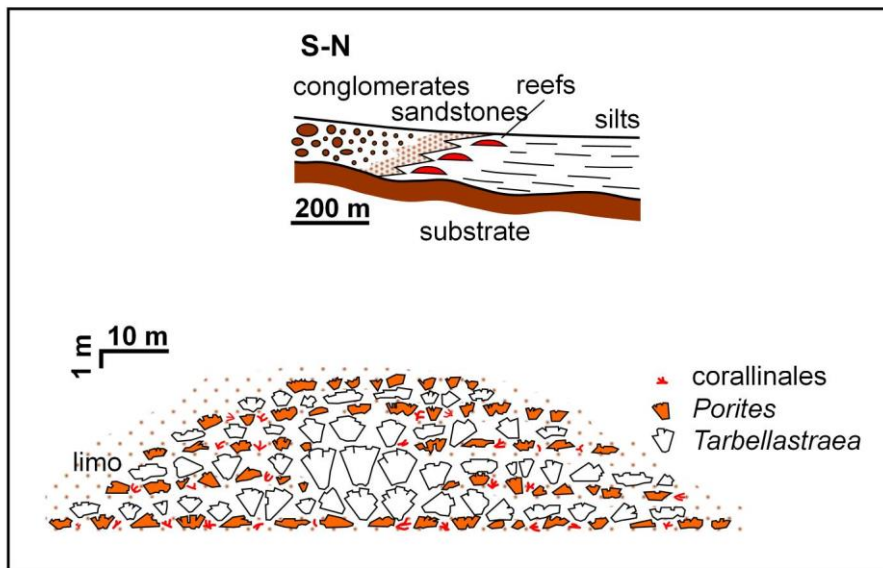


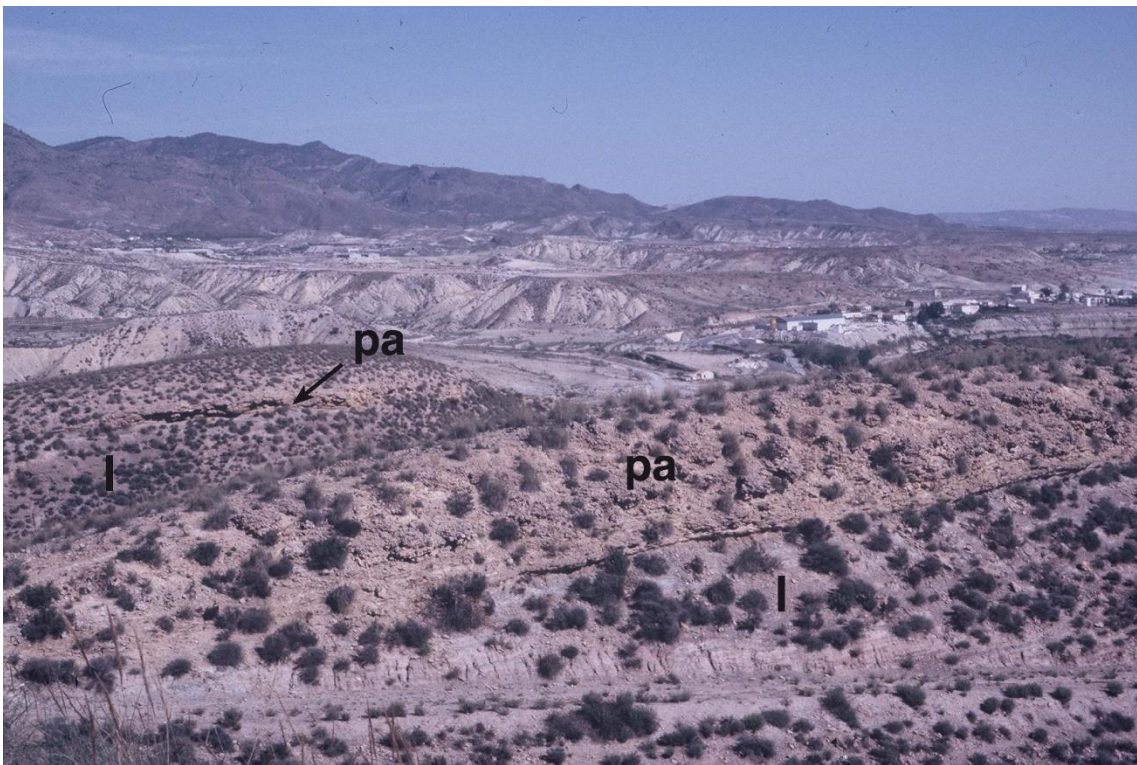
Figure 44. (A): Stratigraphic position of the Purchena patch reefs. (B): Internal structure of a patch reef. *Tarbellastraea* colonies predominate at the centre, while the exterior is occupied by well-defined *Porites*-*Tarbellastraea* successions separated by silty intercalations (after Martín et al., 1989).



Photograph 261.- Prograding fan-delta sediments below marls. c: Conglomerates; a: sands and l: Silts (Almanzora-river Corridor: Purchena).



Photograph 262.- Close view showing clearly lateral sand (a)/silt (l) transitions (marked by the dashed lines). Triassic limestones and dolostones from the Sierra de las Estancias Alpujarride basement can be seen at the background (Almanzora-river Corridor: Purchena).



Photograph 263.- View of a couple of coral patch reefs (pa) settled on silts (l) (Almanzora-river Corridor: Purchena).



Photograph 264.- Tilted *Porites* colony embedded in silt (Almanzora-river Corridor: Purchena).



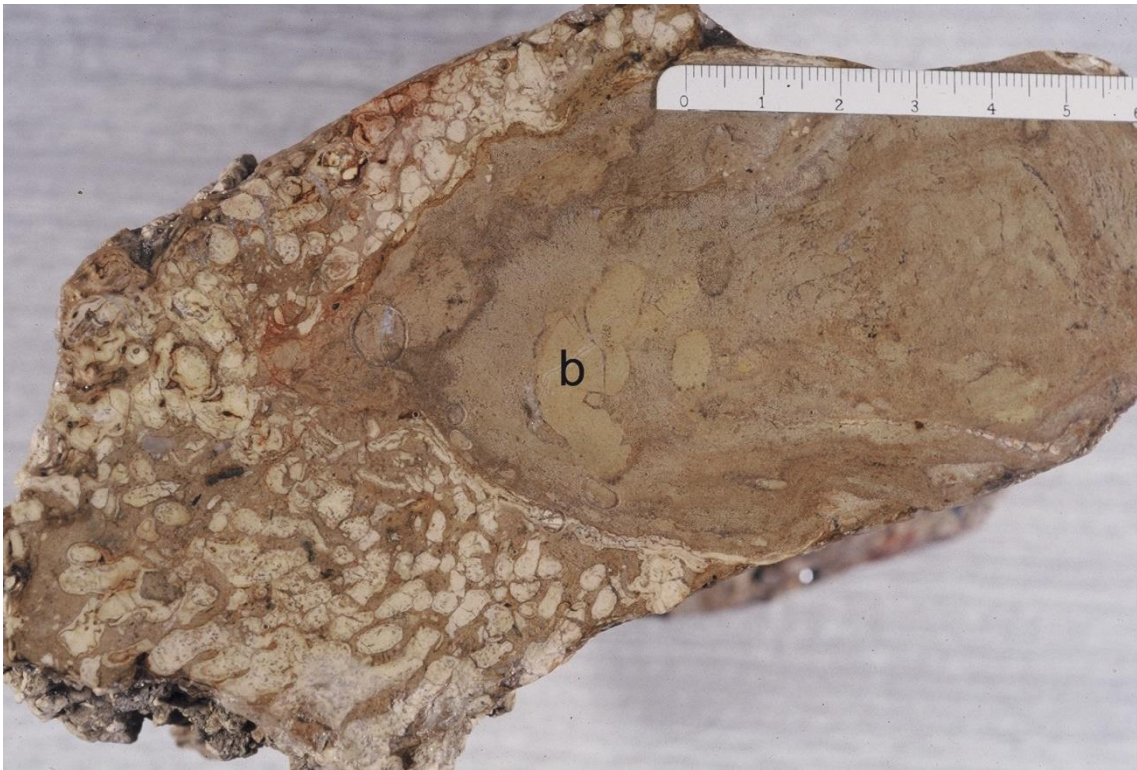
Photograph 265.- Plan view of an *in situ* *Porites* colony found in silts. Coral colony grew up to sea level and developed an extremely flat (knife cut-like) top (Almanzora-river Corridor: Purchena).



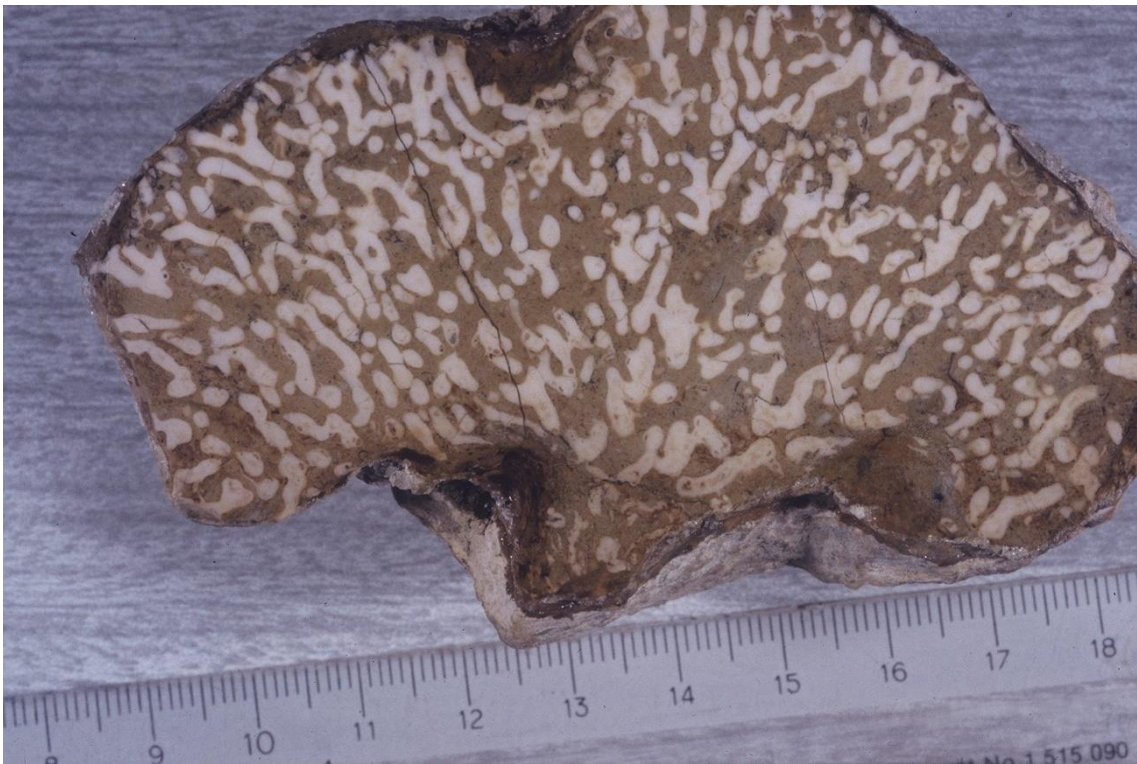
Photograph 266.- Branching *Porites* growths seen in detail (Almanzora-river Corridor: Purchena).

Photograph 267.- Branching coralline-algal growths (*Lithophyllum albanense*) occur in between the *Porites* colonies (Almanzora-river Corridor: Purchena). →





Photograph 268.- Branching coralline algal growths on a *Porites* branch, which was previously bored (b) up to some extent (Almanzora-river Corridor: Purchena).



Photograph 269.- Fine and delicate branching *Mesophyllum* growths (Almanzora-river Corridor: Purchena).



Photograph 270.- *Platygyra* coral head occurring within a *Porites* layer (Almanzora-river Corridor: Purchena).



Photograph 271.- Close view of a *Platygyra* colony (Almanzora-river Corridor: Purchena).



Photograph 272.- *In situ Tarbellastraea* colony from a coral patch reef (Almanzora-river Corridor: Purchena).

The rhodolith pavements

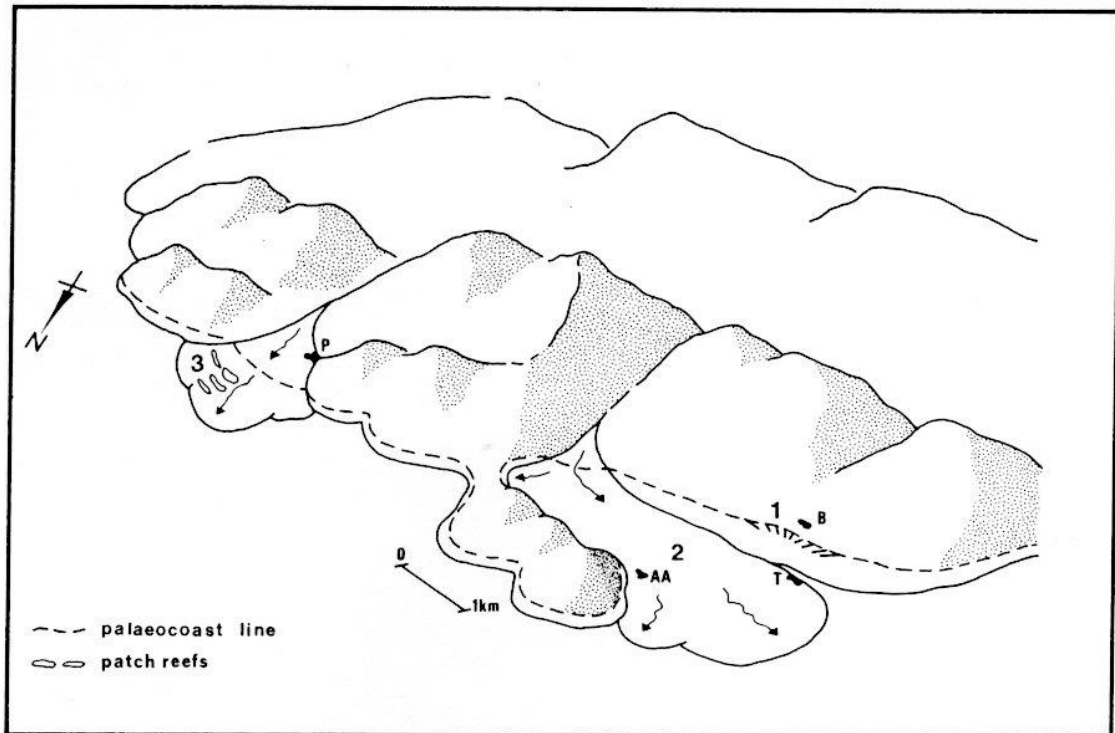
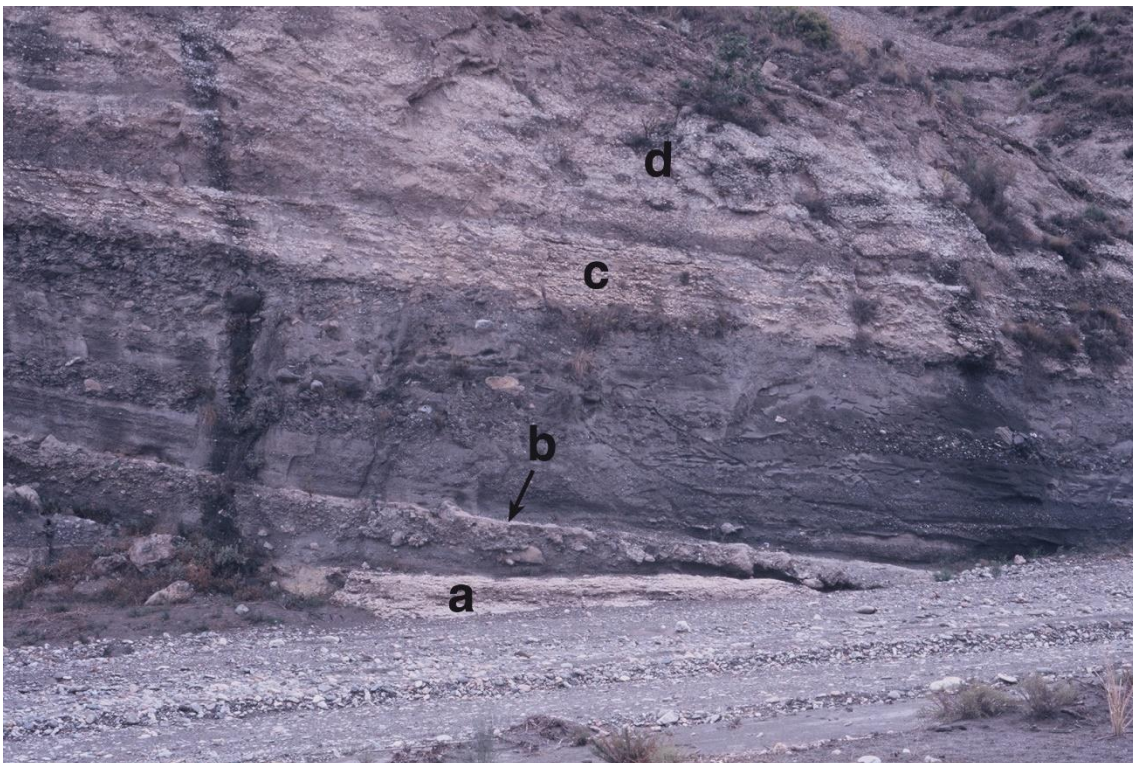
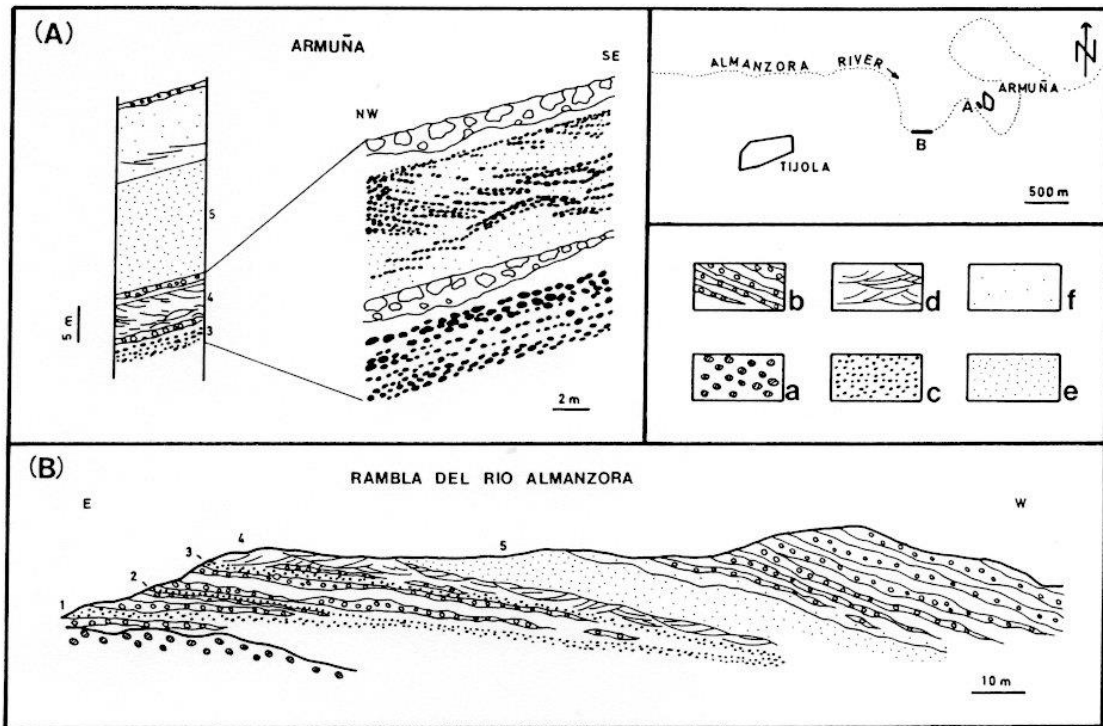


Figure 45. (a): Block diagram showing detailed paleogeography and environments where main coralline-algal growths developed in the Almanzora River Corridor. 1, coastal platforms and talus slopes as illustrated at Bayarque (B); fan deltas as illustrated at Armuña del Río Almanzora (AA); 3, shallow patch-reefs at the leading edge of fan deltas as illustrated at Purchena (P) (after Braga and Martín, 1988).

(b): Coralline growths on fan deltas: Armuña and Rambla del Río Almanzora sections. 1-5, coralline levels. 1-3 correspond to autochthonous beds. In 4 the rhodoliths have been reworked and incorporated into bars and cross-bedded structures. *a*, Middle Miocene red conglomerates; *b*, grey conglomerate wedges of the prograding fan delta changing to sands and silts basinwards; *c*, rhodolith beds; *d*, algal level 4; *e*, algal level 5 (a coastal-marine conglomerate with abundant rhodolith fragments); *f*, same as former but with no algal remains (after Braga and Martín, 1988). →



Photograph 273.- Rhodolith pavements (a-b-c-d) intercalated with fan-delta deposits. The uppermost one is clearly reworked (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 274.- Vertical section of a rhodolith pavement. Rhodolith nuclei are from Palaeozoic-schist and Triassic-limestone/dolostone basement rocks. The matrix consists of a sandstone/microconglomerate, rich in coralline-algal fragments (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 275.- Close view of a couple of rhodolith levels, as seen in vertical section (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 276.- Coralline algae encrusting a quartzite block in a huge rhodolith (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 277.- Successive, encrusting, laminar coralline growths are typical from rhodoliths (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 278.- Rhodolith within a conglomerate. Coralline-algal growth takes place on the exposed top part of the clast but not underneath. In the case here shown, the final growth, preserved in the upper part of the clast, is thicker than the initial growth preserved underneath. The change of the growth area was as result of clast/rhodolith turning (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 279.- Rhodolith with a marked, flattened morphology (Almanzora-river Corridor: Armuña del Río Almanzora).



Photograph 280.- Heavily *Lithophaga*-bored dolomite clasts occurring in some rhodolith layers (Almanzora-river Corridor: Bayarque).

RECOMMENDED ITINERARY:

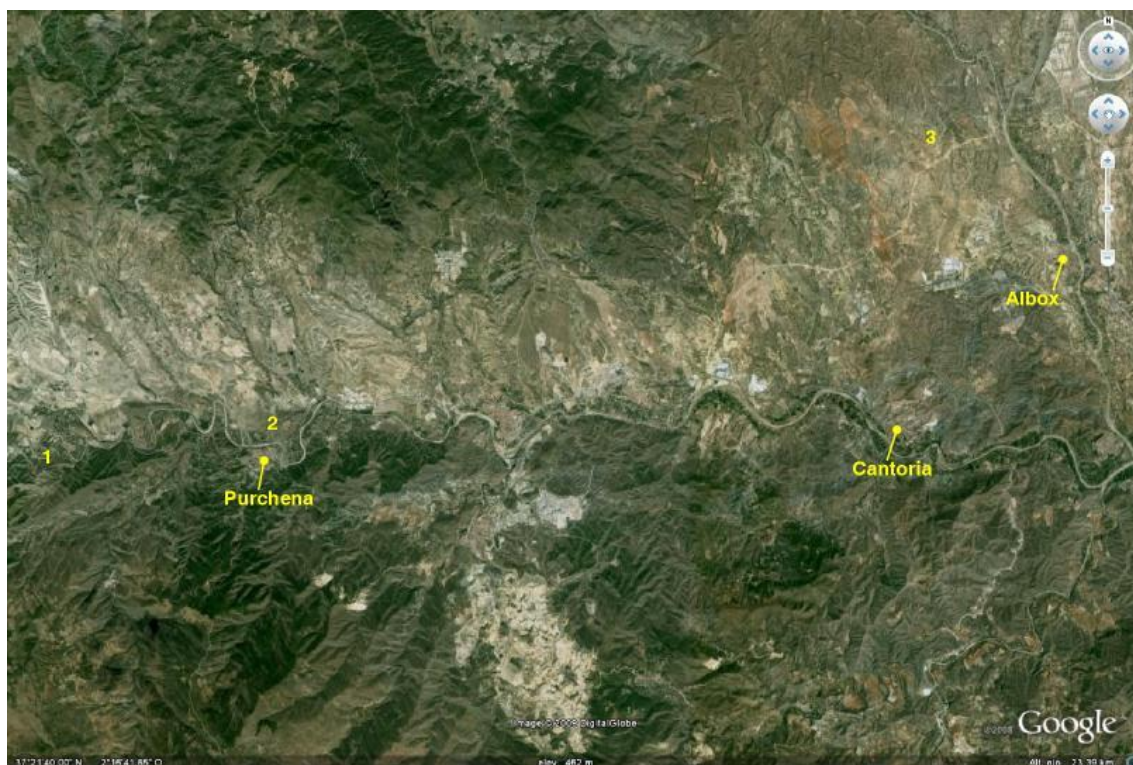
Itinerary 13.- Armuña del Río Almanzora-Purchena-Los Mármoles

Most stops are by the road. It can be done by car with only some small walking.

Main subjects: Tortonian rhodolith pavements and coral reefs.

Duration: Half a day/One day.

Location map



Stop 1.- Armuña del Río Almanzora:

Main features: 273, 274, 275 and 276.

Stop 2.- Purchena:

Main features: 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271 and 272.

Stop 3.- Los Mármoles:

Main features: 255, 256, 257, 258, 259 and 260.