The centring is automatic and it takes place because of the presence of a sliding spherical bowl in each bearing.

In the presence of an earthquake, this bowl also permits the immobility of the building with respect to the horizontal translation of the foundation-soil complex, because its thickness variation is perfectly balanced by the corresponding elastic deformation of the main springs at every instant and for any value of the horizontal displacement.

The horizontal inertial force in the building does not modify its static equilibrium, because it is minor when using bearings with sliding friction and negligible when using bearings with rolling friction.

The variation of the natural frequency of the building takes place during the vertical motion of the soil only during an emergency, characterised by an interval seismic frequencies including the resonance one. In fact, the presence in each bearing of a system of auxiliary springs, automatically started in this situation, permits the action of the main springs to be strengthened with a consequent increase in the natural frequency of the building and a drastic decrease in the vertical displacements of the building to values compatible with its safety characteristics.

Aseismic system with magnetic insulators

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The system proposed is based on the following operations:

1. interruption of the solidarity between the building and the foundation-soil complex;
2. use of magnetic insulators.

Each bearing consists of two fast electromagnets at direct current, reciprocally faced with the same polarity. One of them is connected with the building, the other with the foundation. At the beginning of an earthquake the start of the electromagnets occurs by means of a devices system constituted of:

- an accelerometer or a seismograph;
- a current generator;
- an electronic control station.

During an earthquake the magnetic flux between the two electromagnets is able to lift the building, separating it from the foundation-soil complex. The thin air stratum formed between the electromagnets makes it possible the rigid translation of the foundation-soil complex with respect to the building, which remains motionless. Appropriate devices, laterally placed, prevent that the variation of the magnetic flux, due to the soil motion, induces the translation and the rotation of the building. At the end of the earthquake, the magnetic flux stops and the building, by means of hydraulic dampers, vertically placed, gradually returns to the initial position of rest, after that an eventual small horizontal displacement of it has been annulled by a device with the function of the building centring.

The undoubted advantage of the proposed complex system, compared to all aseismic systems, is the total reduction of the seismic energy in the building.

Foredeep basins: An introduction to models and real world situation

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In foredeep basins, the accommodation space is created by vertical forces, usually a combination of the load of orogenic wedges and of "hidden loads" applied to the plate margin. Consequently, the system foredeep is subdivided in three domains where different phenomena take place. In the foreland bulge the basin substratum is elevated and might experience erosion. In the basin domain, the substratum subsides thereby allowing for the accumulation of the basin fill. The load is the site where the shortening and thickening takes place.

During shortening and subduction, lithospheric regions move through these domains and single segments successively undergo uplift with possible erosion, subsidence and eventually incorporation in the wedge. These fairly simple features produce a quite stringent set of predictions with which the geological record can be compared:

a) A lateral shift of areas of comparable subsidence from one formation to the other. The most diagnostic point is the site of pinch-out against the foreland bulge. In the foredeep model, the pinch-out position must move away from the foreland bulge going in deeper (older) formations of the basin fill.
b) The geometry of the basin, that is, its width and the dip of its substratum must remain constant through time.
c) Subsidence must take place during thrusting. Although the foredeep model is very widely applied, the thorough analysis of the data often indicates that most predictions are not fulfilled. A "correct" behaviour seems to apply during the initial stages of subduction, although this might be associated with the inferior quality of the record.

In a second stage changes are observed which are basically related to the increased difficulty of subducting the lower plate lithosphere and, therefore, with an increased mechanical coupling between upper and lower plates. Such an increased coupling can be due to various phenomena as the introduction into the subduction zone of negatively buoyant lithospheric segments (continental domains) etc. Foredeep basins developing in a retro-wedge position are particularly prone to exhibit coupling and thereby deviate from the normal behaviour because of their upper plate position.

With increased coupling, persisting convergence at the boundaries of the system can be accommodated in various ways such as:

a) "Exporting" deformation away from the collision zone. Strain will then occur in mechanically well-suited sites such as the external edge of the foredeep basin and, further in the foreland, by pre-existing weakness zones.
b) Lithospheric buckling.
c) Steepening of the foredeep base and contraction of the foredeep basins

These changes have a profound influence on the creation and destruction of accommodation space.

Importance of the collision of Iberian plate against african plate in morphostructural evolution and filling of Western Moroccan phosphated basins

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Because of its potential resources in hydrocarbon and phosphates, the Moroccan Atlantic margin raises a lot of interest. It also holds in its Mesetien part one of the largest phosphatic deposit in the world. Her we present the analysis of the tectonosedimentary reactions induced by collisions of the African plate against the Iberian plate in morphostructural evolution of western Moroccan phosphated basins. These investigations are mainly based on field data, data recorded from work done by the OCP (Office Chérifien des Phosphates) group and the interpretation of industrial seismic profiles provided by ONAREP (Office National pour la Recherche et l'Exploitation du Pétrole). Our aims are devoted to the apprehension of the geometry and the kinematic of these basins which are contemporaneous to the Central Atlantic Rifting, as well as the determination of the list of factors liable to the genesis of these phosphatic basins. Other data of field observations (cartography, study of structural features, etc.) permit to identify the general structure of the prospect. Sedimentation of phosphated deposits is constrained by the presence of two wrench faulting systems oriented N20–30° E to N40–60° E and N100–110° E to N140–160° E.