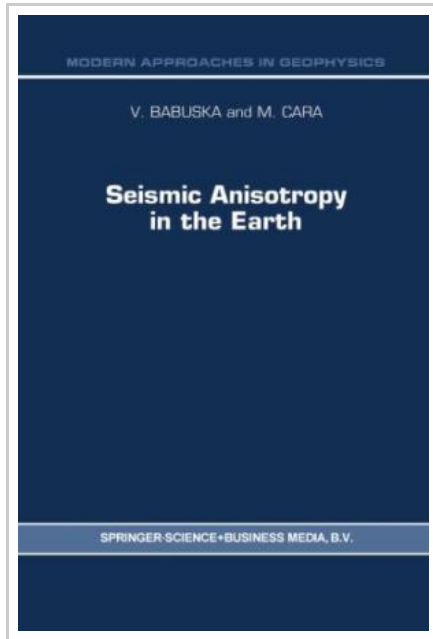




Seismic Anisotropy in the Earth

By Babuska, V. / Cara, M

Book Condition: New. Publisher/Verlag: Springer Netherlands | Structural geologists are well aware of the fact that isotropic rocks are quite exceptional in nature. Whichever origin, sedimentary, metamorphic or magmatic, rocks are shaped with a plane of mineral flattening, the foliation in geologists' jargon, and with a line of mineral elongation, the lineation. Just like a good quarryman, a trained structural geologist will detect preferred orientation in an apparently isotropic granite. Preferred mineral orientation and thus structural anisotropy are the rule in nature. Considering the large variations in elastic coefficients of rock-forming minerals, it could be predicted that, in turn, seismic anisotropy should exist and be important, provided that domains with a similar structural signature are large enough to affect seismic waves. This is why, in 1982 at a conference held in Frankfurt, which was one of the first meetings devoted to the subject of seismic anisotropy, I asked Don Anderson the question of why seismologists had not considered earlier in their models the obvious constraint of anisotropy. I still remember Don's answer: "Adolphe, we knew that our isotropic models were not very good but we had no other choice. It is simply that, so far, computers were not large enough to integrate the anisotropy parameter". Changing isotropic glasses for anisotropic ones permits us to obtain better and more realistic seismic models of the Earth's interior, but, maybe more importantly, it has, for a seismologist, the...



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