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华北克拉通东部地块和大别—苏鲁造山带印支期褶皱-逆冲构造与动力学背景

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摘要:

大别-苏鲁造山带不同岩片(块)经历了不同的褶皱变形。榴辉岩块(或透镜体)和硬玉石英岩片经历了高压-超高压背景下的两幕褶皱变形之后,在区域性第一幕变形期间主要发生透镜化为主,后期与围岩共同经历紧闭同斜第二幕褶皱。而其它岩片主要经历了现今野外可见的区域性三幕褶皱,其中区域性第一幕褶皱为片内残留褶皱,在斜长角闪岩透镜体中多见,宏观规律不明。区域性第二幕褶皱在露头尺度多见,轴面为折劈理,局部强烈置换成片理化带(复合片理或第二期片理),恢复第三幕褶皱改造作用后,揭示出各种岩片中的各级尺度的第二幕褶皱都为轴面北西倾南东倒、轴迹走向为NNE向的紧闭不对称褶皱,不对称性一致反映其指向与各种岩片向南东的逆冲运动有关。第三幕褶皱为以片理或折劈理为变形面的宽缓褶皱,轴迹走向NWW,枢纽向西倾伏。韧性剪切带为非透入性构造,分早晚两期,早期为韧性逆冲,新县穹隆以南,运动学标志指示向北逆冲,错切第二幕褶皱,结合新县穹隆北部向南的逆冲特征,反映这些韧性逆冲断层多数为第二幕大型褶皱翼部的次级逆冲断层;晚期为韧性滑脱带,其发育局限于几个岩性差异较大的接触带,带内伸展型折劈理发育,并对挤压构造样式有重要的改造作用。华北克拉通东部地块是华北克拉通的重要组成部分,其盖层古生界和三叠系在印支运动期间经历了一幕宽缓褶皱作用,其轴迹方向主体也为NWW向。这一褶皱构造明显在变形时间、变形样式和展布方向上都和大别-苏鲁造山带中的第三幕褶皱非常一致,说明它们具有动力学上的必然联系。同时,研究表明在华北克拉通东部地块中没有经历大别-苏鲁造山带中区域性第一、第二幕褶皱变形的记录,故本文认为印支期这两幕变形主要发生在华北板块东南缘的边界上,并没有波及到板内,而且从东向西高压-超高压岩石剥露具有穿时性。只有当华北板块和华南板块在第二幕变形之后构成了统一块体后,第三幕变形才波及华北板内。

英文摘要:

The Dabie-Sulu orogen consists of different slices and blocks undergoing multiple-stage folding and thrusting. Particularly some eclogite blocks and jadeite quartzite units underwent two-stage pre-UHP and syn-UHP deformation, following boudin-making and slicing during regional first-stage (D_1) deformation and D_2 folding during the regional second-stage deformation. However, other slices or units only underwent mainly regional three-stage folding. The regional first-stage deformation is shown as intra-folial minor folds, mainly preserved in amphibolite blocks. The regional second-stage deformation is commonly outcrop-scale. Its fold axial plane is crenulation cleavage, locally being foliated composite schistosity belt due to intensive displacement. After restoration of D_3 folding, it is shown that axial planes of different-scale tight, asymmetric D_2 folds in different units are southeastern-overtaken and NNE-striking. D_2 fold asymmetry implies that it is related to southeast-directed thrusting. The third-stage folds are open folds with NWW-strike, western plunge consisting of deformed schistosity and crenulation cleavage. Unpenetrative ductile shearing related to these folding has two stages. The early ductile shear thrusting is south-directed in the north of the Xinxian dome and south-directed in the north of the Xinxian dome, cutting the second-stage folds and being associated with secondary-scale thrusts by the limb of the second-stage large-scale folds. The later ductile decollement zones only developed in the contact belts of obvious rock types around the Xinxian dome, with extensional crenulation cleavage, obviously reforming the previous structures. The Eastern Block is an important tectonic unit of North China Craton located at the hanging wall of the Dabie-Sulu orogen, of which Paleozoic to Triassic sedimentary cover underwent one-stage regional folding during Indosinian (Late Triassic). Its axial trace is NWW-striking. It is consistent with that of the third-stage folds in the aspects of deformation time and fold style and spatial trending. This implies that they are related in geodyn

amics. At the same time, this study shows that the Eastern Block didn't undergo the other earlier regional two-stage deformation in the Dabie-Sulu orogen. Therefore, the two-stage regional Triassic folding has no influence to the inner of North China plate, only happened in the southern margin of North China plate. Only in the case of unifying of North and South China plates after the regional second-stage folding, the third-stage deformation in the Dabie-Sulu orogen induced the first-stage folding in the inner of North China Craton. Diachronous exhumation of HP-UHP rocks in the Dabie-Sulu orogen is related this geodynamic setting and processes of structural evolution.

关键词: [褶皱](#) [逆冲](#) [华北克拉通](#) [大别山](#) [苏鲁](#) [超高压](#) [三叠纪](#)

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