



Some debatable problems of stratigraphic classification

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Russian geologists perform large-scale geological mapping in Russia and abroad. Therefore we urge unification of legends of geological maps compiled in different countries. It seems important to continuously organize discussions on problems of stratigraphic classification.

1. The stratigraphic schools (conventionally called “European” and “American”) define “stratigraphy” in different ways. The former prefers “single” stratigraphy that uses data proved by many methods. The latter divides stratigraphy into several independent stratigraphers (litho-, bio-, magneto- and others). Russian geologists classify stratigraphic units into general (chronostratigraphic) and special (in accordance with a method applied).
2. There exist different interpretations of chronostratigraphy. Some stratigraphers suppose that a chronostratigraphic unit corresponds to rock strata formed during a certain time interval (it is somewhat formalistic because a length of interval is frequently unspecified). Russian specialists emphasize the historical-geological background of chronostratigraphic units. Every stratigraphic unit (global and regional) reflects a stage of geological evolution of biosphere and stratisphere.
3. In the view of Russian stratigraphers, the main stratigraphic units may have different extent: a) global (stage), b) regional (regional stage, local zone), and c) local (suite). There is no such hierarchy in the ISG.
4. Russian specialists think that local “lithostratigraphic” units (formations) which may have diachronous boundaries are not chronostratigraphic ones in strict sense (actually they are lithological bodies). In this case “lithostratigraphy” can be considered as “prostratigraphy” and employed in initial studies of sequences. Therefore, a suite is a main local unit of the Russian Code and differs from a formation, although it is somewhat similar. It does not mean that lithostratigraphy is unnecessary. Usage of marker horizons, members and other bodies is of great help. Lithostratigraphy may be regarded as the start of geological mapping on scales of 1 : 10 000, 1 : 25 000 or 1 : 50 000, and lithostratigraphic subdivisions can be used as the mapping units because they practically have isochronic boundaries when we deal with geological mapping on these scales.
5. Russian geologists interpret a chronozone (defined with due account of the standard assemblage-zone) as a part of a stage. In opinion of other specialists, zones serve as correction markers. This gives rise to controversy where zonal scales are needed for the Phanerozoic or whether stage scales are sufficient. In the Russian Code a chronozone is referred to general stratigraphic units (less than a stage).
6. The popular GSSP “concept” may be inadequate in the broad sense because stages remain “empty” and do not reflect geological events. The search of “golden spikes” can be useful as a part of comprehensive investigations of stratigraphic subdivisions. “Silver” and other type spike-markers can be used as well as recommended by event stratigraphy (Ager, 1973).
7. A new version of “International Stratigraphic Guide” should include not only recommendations but also alternative views. However the work must not be done in a hurry! In avoid bias representatives of interested countries should be involved.

Finally, I would like to make two proposals.

Proposal 1. A special symposium should be held during the second International Congress on Stratigraphy-2015 to review national stratigraphic codes (USA, Germany, Great Britain, China, Russia, Australia and other countries). This can provide better understanding of their similarities and dissimilarities and enable to realize how much they differ from each other. The review may show the present state of the stratigraphic classification and reveal both pressing and alleged problems of stratigraphy of the early XXI century.

Proposal 2. It would be appropriate to prepare a special publication presenting briefly codes of different countries. Every national code is described on two pages: a tabled stratigraphic classification on one page and comments on another. Such publication would be most helpful.