**STRIKE-SLIP DISPLACEMENTS ON FORTUNA TESSERA.**

N.N. Koronovsky, Geological Faculty, Dynamic Geology Department, Moscow State Lomonosov University, 119899, Moscow, Russia. koronovsky@dymano.geol.msu.ru

**Introduction.** The showing of strike-slip deformation structures in the central part of Fortune tessera where are zones of concentration deformations (ZCD) are widely spread, was our main aim of the work.

**Observations.** Strike-slip displacements mostly clearly observed in the central part of Fortune tessera (image 75N074 in the district of 113 906 26 km² square) (Fig.1). At this territory not clearly expressed ridges 18-25 km wide are observed. And valleys having the same width trending along NE orientation. There is a system of proportionality spread fractures crossing the ridges, with spacing 2.4 – 3.0 km. 9-10 ZCD 11-15 km wide and long up to 340 km. The light lineaments inclined to flat surface and reflected the character picture of right strike-slip displacement under conditions of plastic deformation, are observed in these areas (ZCD). The smaller stripes of deformations concentration are formed in these zones. Fractures crossing the ridges are absent at these deformation zones. (Fig. 2) Narrow zones of complicated grabens, fractures and escarps trending up to 300 km along submeridional azimuth, 5-20 km wide crossing this structural pattern. Grabens are younger than other structures, and they are displaced by right strikes up to 50 km. As there are 9 strike-slip displacements zones and in each zone grabens are displaced by right strikes, the summary displacement may come up to 130-140 km.

The zones marked above trending along NE azimuth numbered from south to north from 1 to 9. The mostly clear observed strike zones 1, 2 and 3. The rest of them are less clear but they also can be marked. Every strike zone as have been told earlier have width about 10 or more km. This tells about powerful tectonic movements. All of the zones have character exactly for strike deformation linear contour at the edges of stripe. The narrow linear ridges 1-2 km width – look like anticline are observed inside these zones like in Earth strikes. They can be called drag folds. In strike zones 1 and 2 they are mostly clear observed trending diagonally to the contour of the strike zone.

It has been told about fixing of strike-slip displacements in graben system, which are crossing almost all structures in meridional direction. We have 5 systems in observed territory; roam numbers from west to east numbers them. The system of grabens are complicated zone 5-20 km width, consist of 1,2 or 3 grabens put in each other or placed by. Sometimes grabens replaced by several terrace benches.

Let’s trend for example the IV graben system. At the north, northerly than strike zone 4, this system presented by one not very clear graben. Grabens crossing the 4-th zone displaced a little to the west. In narrow zone 3 displacement are not so clear, but in zone 2 displacement reach up to 50 km (46,8 km) and continue of IV graben system observed by submeridional zone 17,55 km width. This zone has several terraces at the east and graben at the west part. Going to the south we see right strike-slip displacement at 12 km. in strike zone 1. Then, southerner graben system replaced by terraces or escarps, crossing by thin line of deformation concentration, also having strike slip origin what we have at the south. To the north of strike zone 4 knee-like folds of graben system I and II are observed. At the north of observed area rather narrow ZCD are trending. The strike-slip displacements of light lineaments – graben, escarps, rather less than in southern ZCD. Right strike displacements can be seen in zone 8 and 9. The best expression of graben systems displacement are between ZCD 1 and 2, 2 and 3, where deformation zones presented by echelon linear structures, placed obliquely inside strike stripe and graben are have right strike-slip displacement.

**Discussion.** The most ancient are ridges, valleys and fractures crossing the ridges.

These structural elements presented primary pattern of tessera surface. They are not very well observed, because the domens or valleys disguised by ZCD. Crossing fractures or small grabens shows us the where the ridges are, because they formed under compressional conditions and extensional fractures (graben) always formed in fold crest of anticline. The strike zones are morphologically complicated, but very similar to the same zones on the Earth.

The system of coulisse-like anticline folds or extensional fractures forms between two parallel strikes (look like passage), which observed only inside this passage as in ZCD 1 and ZCD 2. Looking at the character structural pattern we deal with plastic strike-slip displacements. It is very important to notice that strike concentrate at the edges of the passage, and inside it forms system of fractures and folds. Exactly the same picture we can see in our example. But when did these strike displacements take place?

The systems of graben displaced by strikes and graben cross ridges. So, there are two possible variants of formation.

1) The ridges and valleys with crossing fractures formed earlier than graben systems then displaced by strikes.

2) Graben systems formed simultaneously with strikes and present a result of ridges extension with displacements in strike-slip displacements zones. The question is to separate by time graben systems and ZCD or not? There is important to notice that ZCD alog their trending became less clear and then – disappear. Strikes and ZCD are frequently observed element of tessera pattern.

**Conclusions.** The structural pattern of typical right strikes, fixed by submeridional graben systems displacements is determinate in the central part of Fortune tessera. The strikes and graben are more younger than not clearly expressed ridges. And correlation of graben and ZCD don’t have a simple solution.
Fig. 1 Strike-slip displacements in the central part of Fortuna tessera.

Fig. 2 Interpretation of Fig. 1. Blue roam numbers – graben systems. Red numbers – ZCD. Red arrows – direction of strike displacements.