

СХЕМА РАЗЛОМОВ И ЗОН РИСКА **район Вологды – Грязовца (1:1000000)**



1 – активные глубинные разломы

2 – зоны риска

3 – трасса газопровода

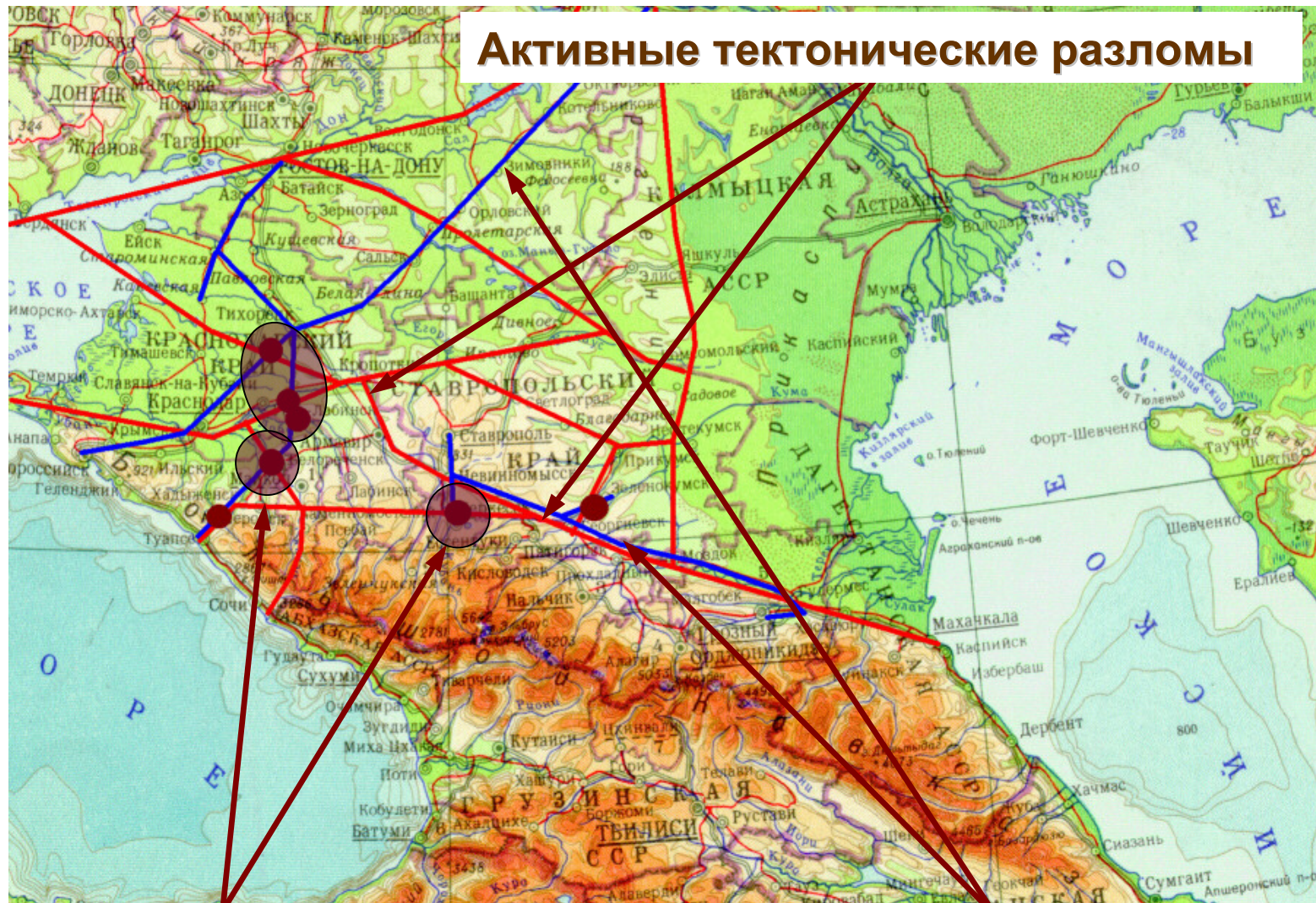
● - аварии на трассе газопровода

● - авария на железной дороге

ГЕОДИНАМИЧЕСКОЕ РАЙОНИРОВАНИЕ РАЙОН ЧЕЛЯБИНСКА



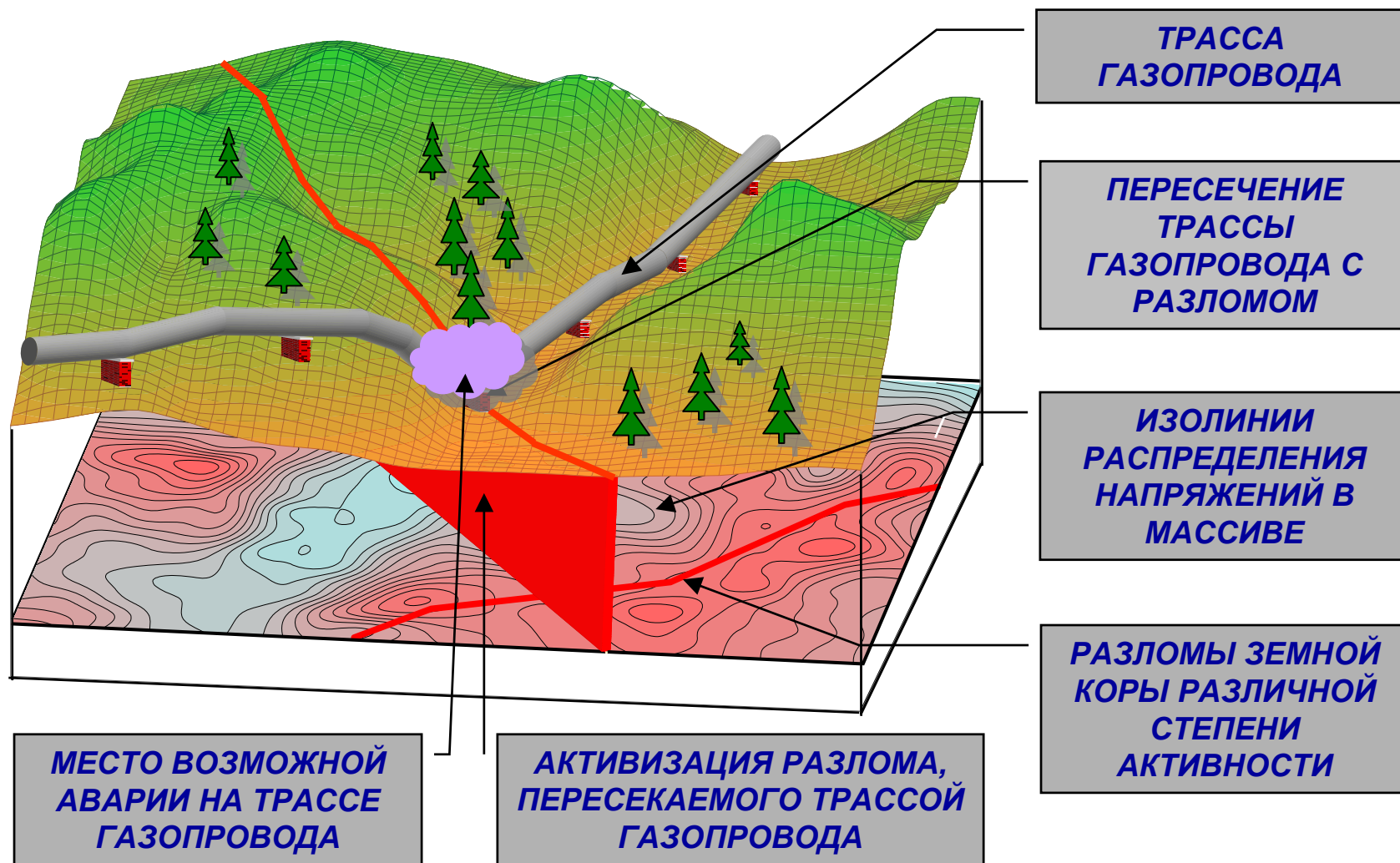
ГЕОДИНАМИЧЕСКОЕ РАЙОНИРОВАНИЕ СЕВЕРНЫЙ КАВКАЗ

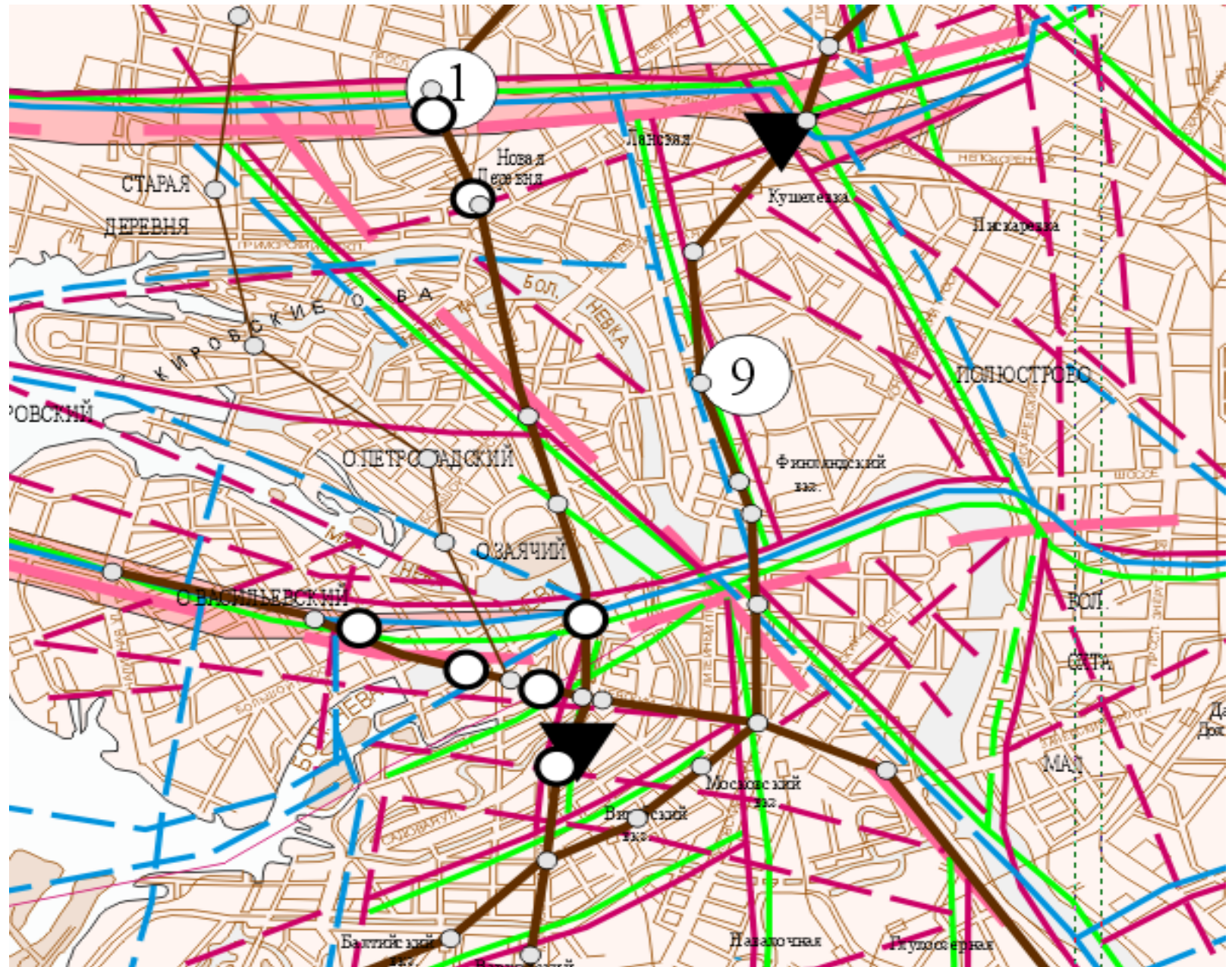


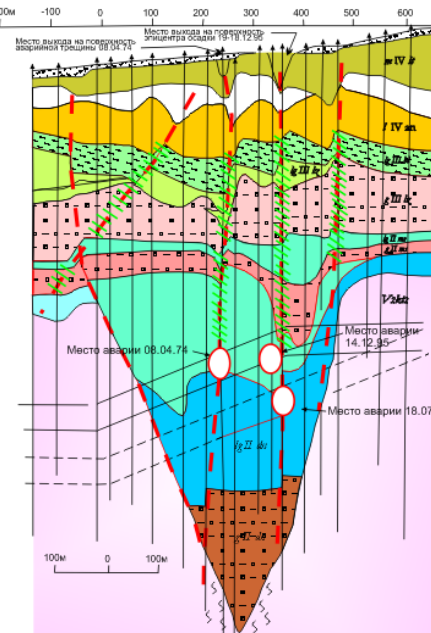
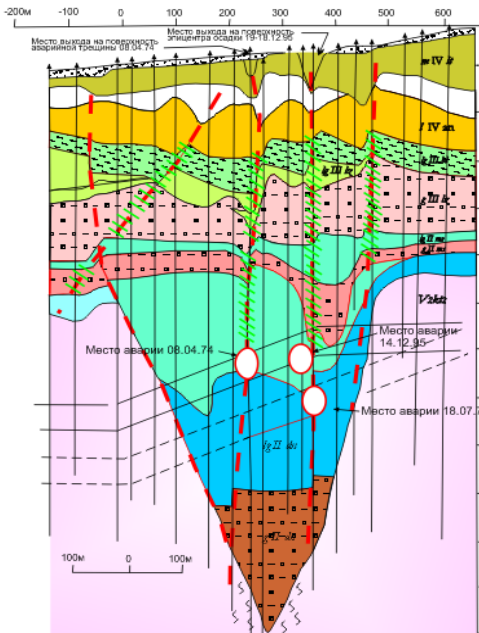
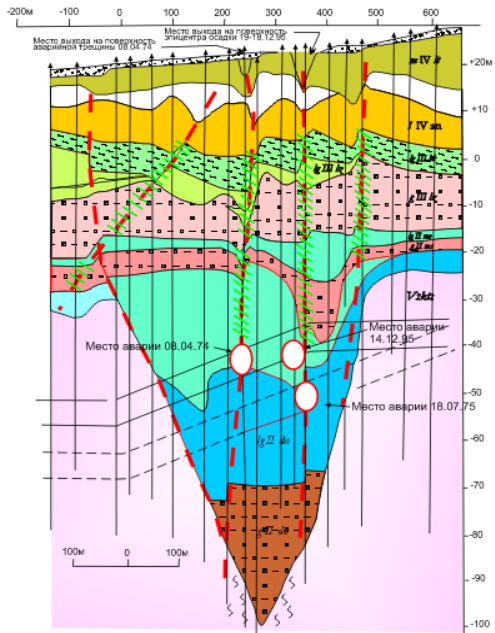
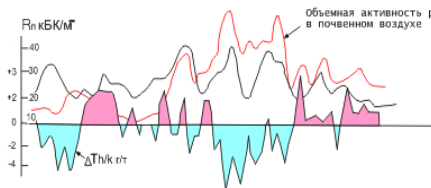
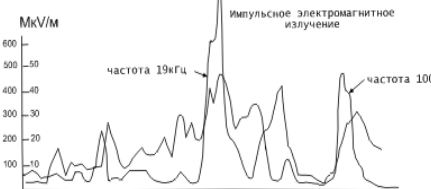
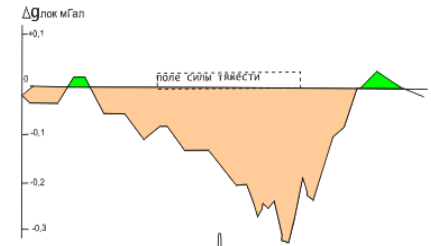
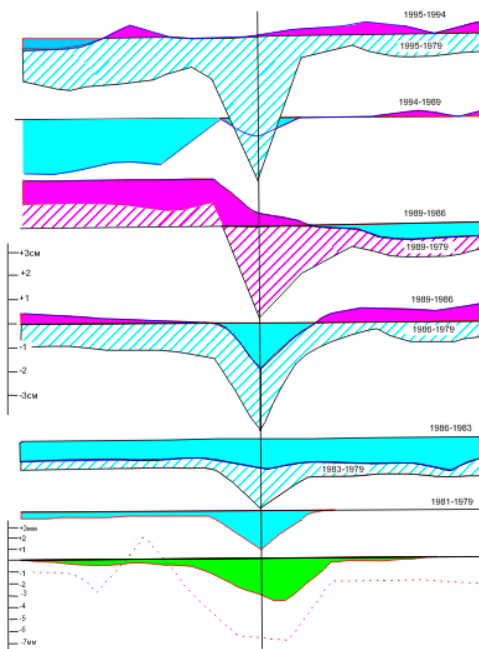
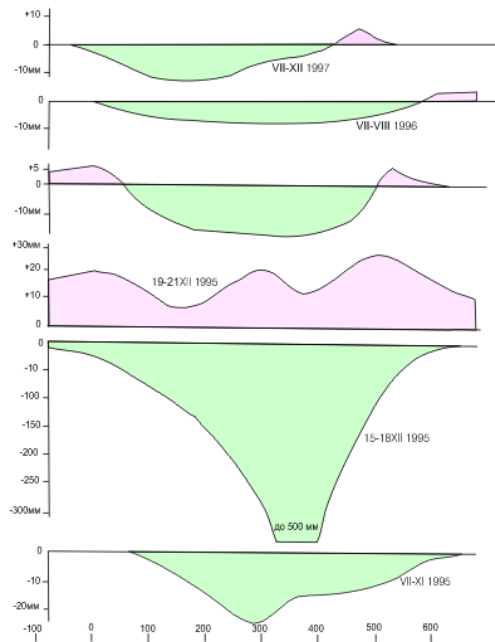
Места аварий

Трассы трубопроводов

СХЕМА ПРОЯВЛЕНИЯ ГЕОДИНАМИЧЕСКОЙ АКТИВНОСТИ







Correlation Coefficients of Presence and Density of Emergencies with Various Factors

Factors	Presence of emergencies		Density of emergencies	
	common	partial	common	partial
Fault type	0.03	0.13	0.09	0.10
Fault activity	0.24	0.11	0.11	0.29
Stress condition of fault	0.64	0.68	0.40	0.16
Mineralization type	0.10	0.07	0.22	0.35
Soil wetness	0.64	0.63	0.40	0.51
Proximity to power transmission lines	0.32	0.06	0.50	0.41

Calculation of Density of Emergencies

$$\rho = \rho_0 [1 + K_{MIN} K_{WAT} K_{STRESS} (1 + K_{ACT}) (1 + K_{ELECTR})]$$

$$N = \rho l$$

ρ - density of emergencies, $\rho_0 = 0.3$ emergencies /km,

N - quantity of emergencies at a site of length l

$$K_{MIN} = \begin{cases} 0, & \text{at absence of a mineralization} \\ 2, & \text{for } \text{SO}_3^- \\ 3.5, & \text{for } \text{SO}_3^-, \text{OH}^- \\ 5.5, & \text{for } \text{SO}_3^-, \text{OH}^-, \text{Mn}^+ \end{cases}$$

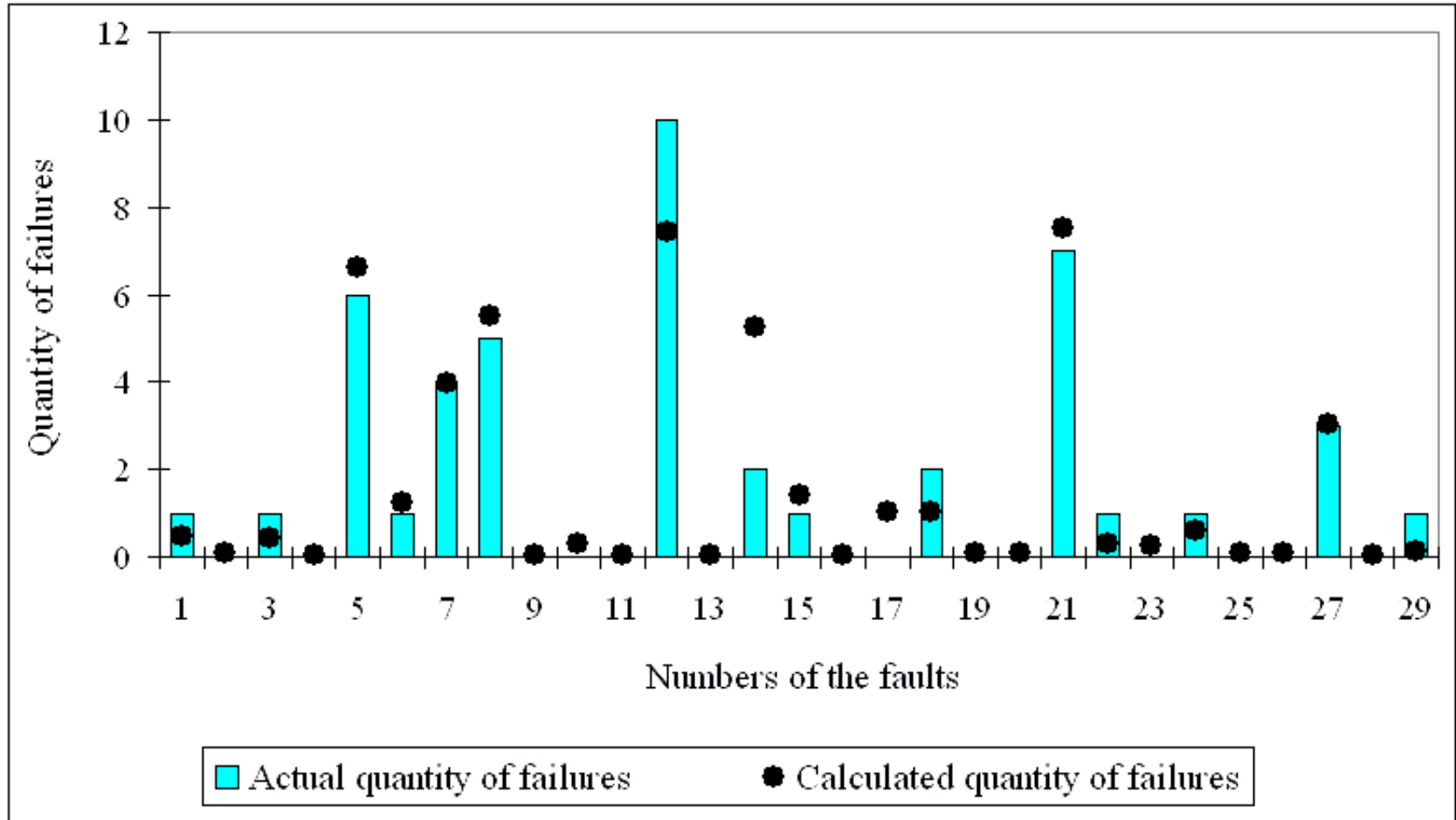
$$K_{WAT} = \begin{cases} 0, & \text{for the bogs and the rivers} \\ 1, & \text{for the dry places} \end{cases}$$

$$K_{STRESS} = \begin{cases} 0.25 & \text{for the compressive fault} \\ 1, & \text{for the loose fault and ruptured zone} \end{cases}$$

$$K_{ACT} = \begin{cases} 0.2, & \text{for the active fault} \\ 0, & \text{for the slow - active fault} \end{cases}$$

$$K_{ELECTR} = \begin{cases} 3.7, & \text{at the distances up to power transmission lines } \textit{less} \text{ than 3 km} \\ 0, & \text{at the distances up to power transmission lines } \textit{more} \text{ than 3 km} \end{cases}$$

Comparison of Calculated and Actual Quantity of Emergencies



The formula considers 71 % of a variation of density of emergencies and 82 % of a variation of quantity