

## QAPF Igneous Rock Classification

RW/12/6/21/JPR – New: A new program titled “QAPF Diagram” has been added to the Utilities / Stats pull-down menu (Figure 1).

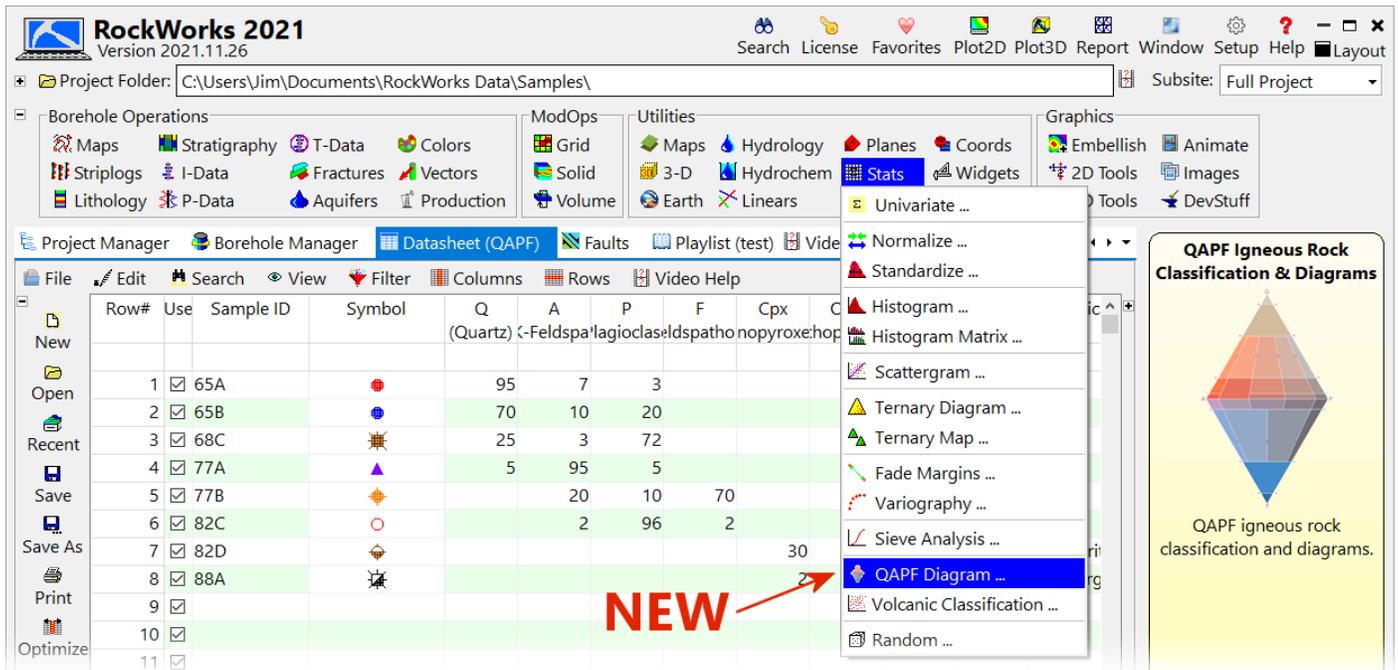


Figure 1

This program (Figure 2) is designed to read relative mineral abundance data from a RockWorks datasheet (Figure 3) and to create diagrams (Figure 4) that depict relative mineral concentrations based on mineral abundance data within the RockWorks datasheet (Figure 3). The program will also classify the input samples based on igneous rock categories depicted within the diagrams and save these classifications within the same datasheet (Figure 3: far-right column).

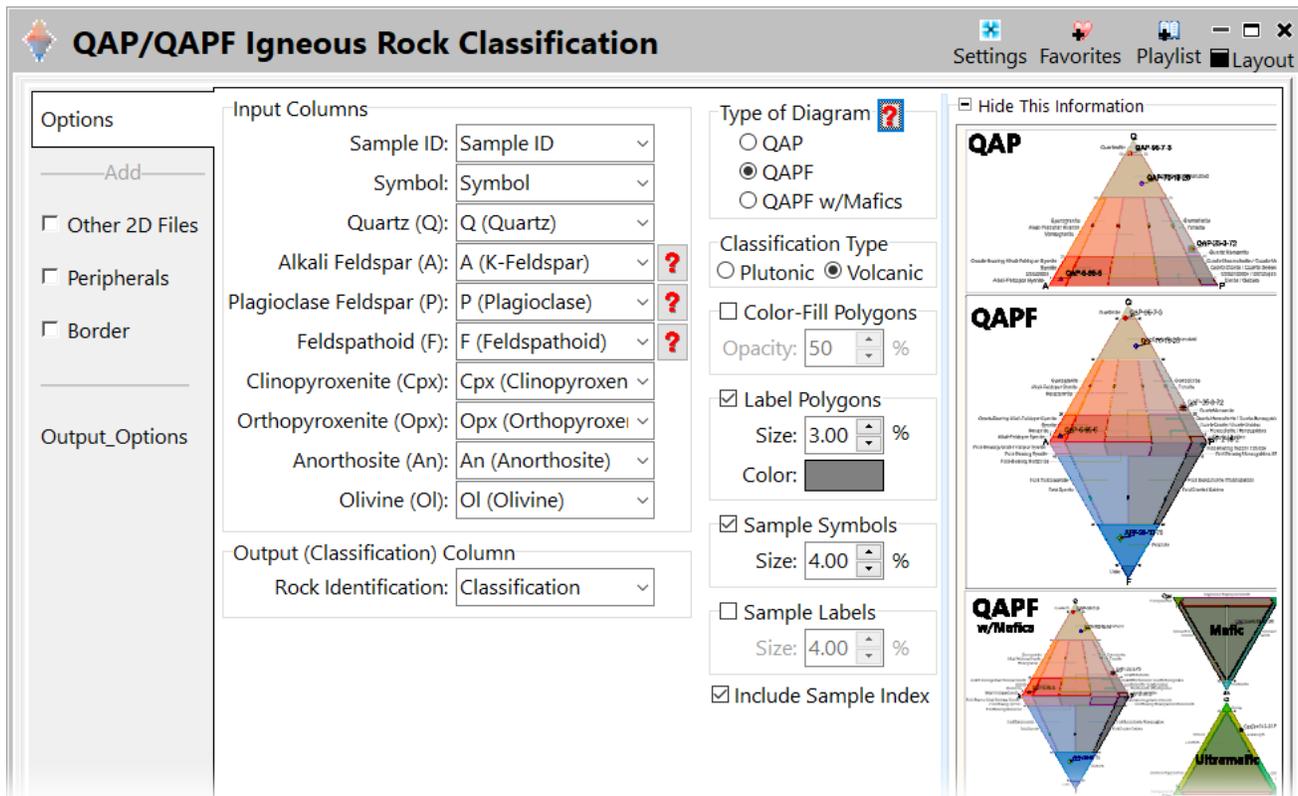


Figure 2

Sample ID	Symbol	Q (Quartz)	A (K-Feldspar)	P (Plagioclase)	F (Feldspathoid)	Cpx (Clinopyroxene)	Opx (Orthopyroxene)	An (Anorthosite)	OI (Olivine)	Classification
QAP-95-7-3	●	95	7	3						Quartzolite
QAP-70-10-20	●	70	10	20						Quartz-Rich Granatoid
QAP-25-3-72	☀	25	3	72						Tonalite
QAP-5-95-5	▲	5	95	5						Alkali-Feldspar Syenite
APF-20-10-70	◆		20	10	70					Foidolite
APF-2-96-2	○		2	96	2					Foid-Bearing Gabbro / Diorite
CpxOpxAn-30-40-30	◆					30	40	30		Cpx-Norite
CpxOpxOI-2-28-70	◆					2	28	0	70	Harzburgite
27A	☀	17	21	15		6	8			33 Monzogranite, Lherzolite
27B	★		15	12	50		10	13		Foid Monzosyenite, Norite

Figure 3

A QAP diagram depicts relative concentrations of quartz (Q), alkali feldspar (A), and potassium feldspar (P) as a ternary graph (Figure 4- top).

A QAPF (aka Streckeisen) diagram (Figure 4 - center) combines a QAP diagram with another ternary graph depicting relative concentrations of alkali feldspar (A), potassium feldspar (P), and feldspathoids (F). The A/P axis is shared by the two ternary diagrams to form a diamond because feldspathoids (aka “foids”) and quartz are mutually exclusive

A QAPF w/Mafics diagram (Figure 4 - bottom) plots the mafic constituents (i.e., clinopyroxene, orthopyroxene, anorthosite, and olivine) within adjacent mafic and ultramafic ternary diagrams.

Units within the input datasheet are inconsequential because the program will automatically normalize the data such that all of eight constituents add up to 100 percent. The program will then subtract the mafic components and re-normalize the non-mafic percentages to add up to 100 percent in order to plot the QAP/APF data. Conversely, the mafic components will be normalized (sans non-mafic constituents) to plot the mafic (clinopyroxene / orthopyroxene / anorthosite) and ultramafic (clinopyroxene / orthopyroxene / olivine) diagrams.



Classifications within the QAP and QAPF diagrams may be switched between plutonic and volcanic terminology ().

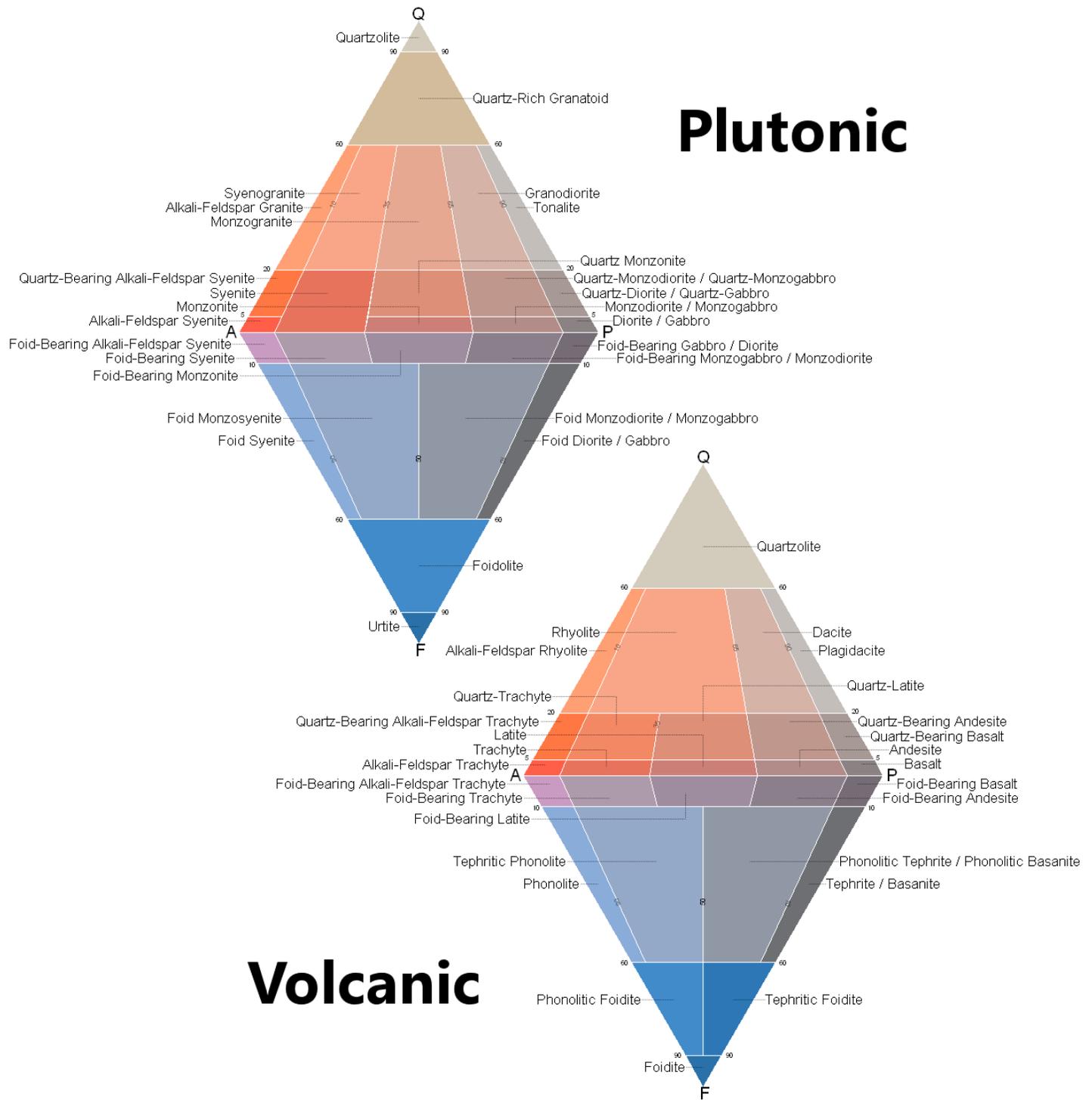


Figure 5

A sample file titled "QAPF.RwDat" is now included within the RockWorks sample folder to serve as an example of how to get started with using this program.

The display options within the QAPF program menu (Figure 6 & Figure 7) provide control over the polygon coloring and labeling, specimen symbols and leveling, and a symbol index legend.

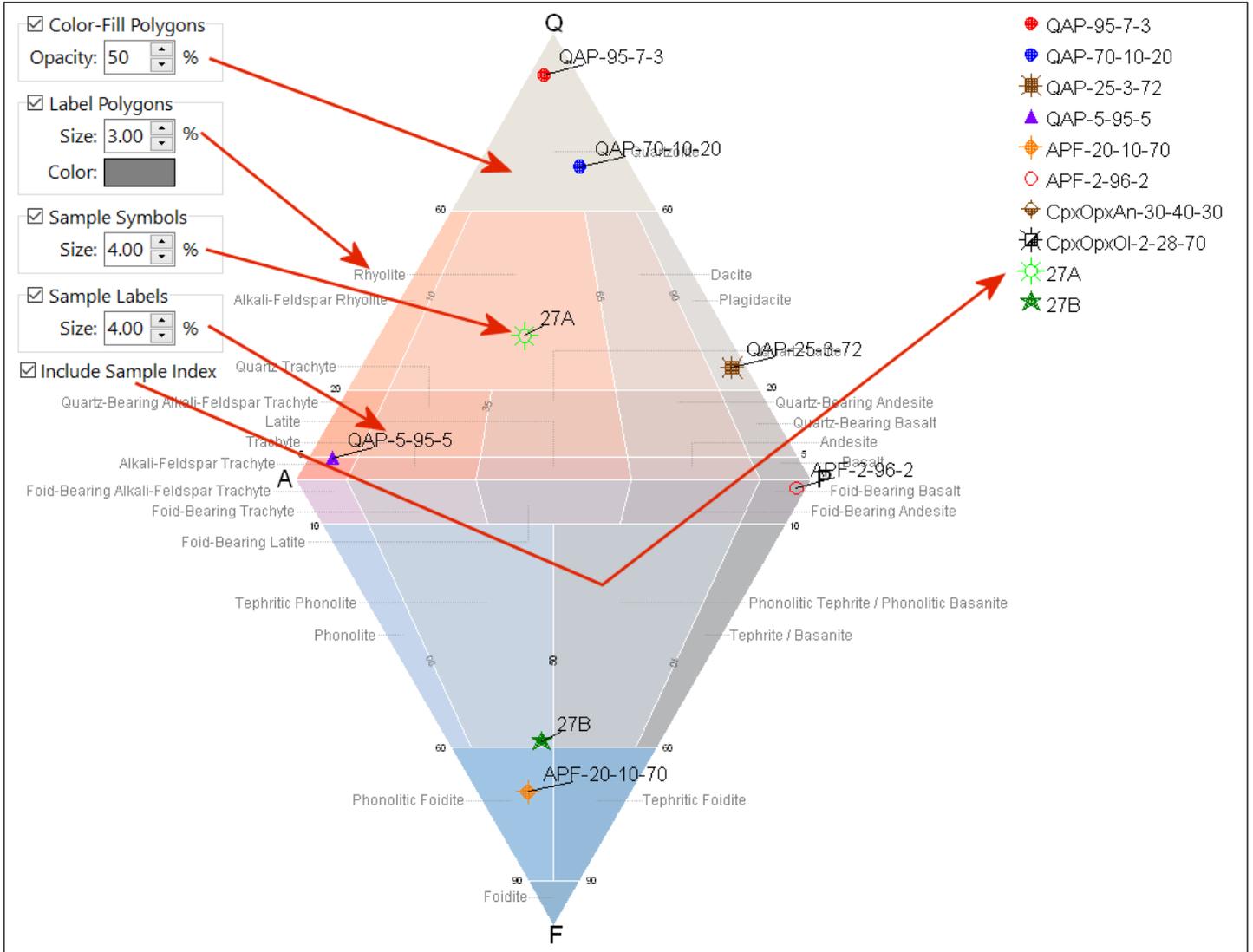


Figure 6

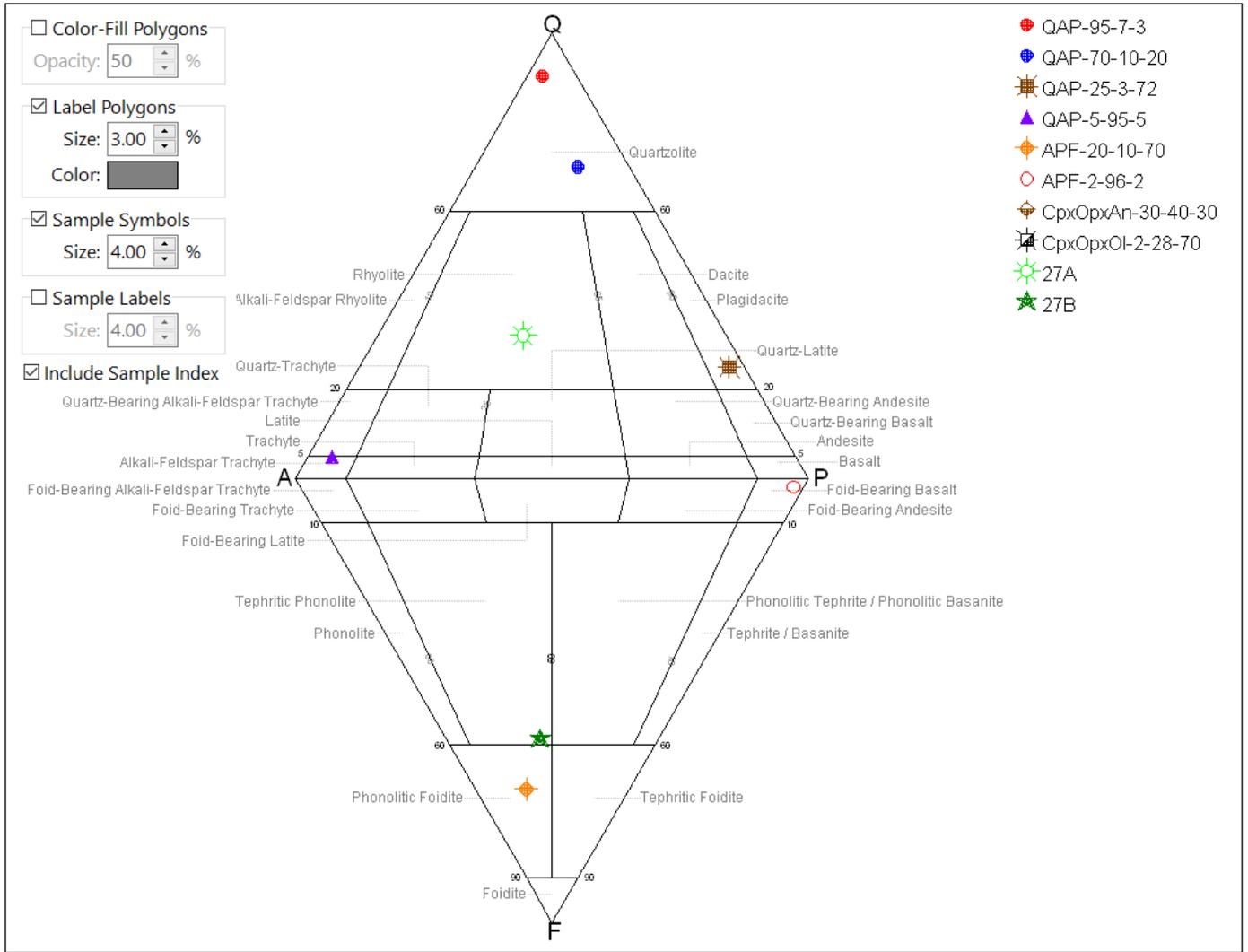


Figure 7