The kernel of the restriction map r is clearly just the sheaf of holomorphic p-forms on M vanishing along V, so we have an exact sequence of sheaves on M

$$(*) \qquad 0 \longrightarrow \Omega_M^p(-V) \longrightarrow \Omega_M^p \xrightarrow{r} \Omega_V^p|_V \longrightarrow 0.$$

Pf

$$0 \longrightarrow \Omega_M^p(-V) \longrightarrow \Omega_M^p \xrightarrow{r} \Omega_V^p \longrightarrow 0 \quad \text{is}$$

correct.

$$\ker r(U) = \{ \alpha \in \Omega_M^p(U) \mid r|_U(\alpha) = 0 \text{ in } \Omega_V^p(U) \}$$

$\Rightarrow$ The kernel of the restriction map r is the sheaf of holomorphic p-forms on M vanishing along V.

Since V is submanifold of M, $\exists$ an extension to M (See p20).

Let $\ker r$ be the sheaf of holomorphic p-forms on M vanishing along V, i.e. if $D = V$, $\ker r = \mathcal{E}(-V)$.

See p138. Let $E = \Lambda^p T^{*\prime} M$. $\Rightarrow$ $\mathcal{E}(-V)$ denotes the sheaf of sections of $\Lambda^p T^{*} M$ vanishing along V.

$\Rightarrow$ Tensoring with s_0^{-1} gives an identification

$$\mathcal{E}(-D) \xrightarrow{\otimes\, s_0^{-1}} \mathcal{O}(\Lambda^p T^{*\prime} M \otimes [-V]) = \Omega_M^p(-V)$$

where $s_0 \in H^0(M, \mathcal{O}([V])) = H^0(M, \mathcal{O}([D]))$
& $D = V$.

Thus, in particular if $D = V$ is a smooth analytic hypersurface, the sequence of sheaves

$$\begin{array}{ccccccccc} 0 \longrightarrow & \mathcal{O}_M(\Lambda^p T^{*\prime} M \otimes [-V]) & \xrightarrow{\otimes s_0} & \mathcal{O}_M(\Lambda^p T^{*\prime} M) & \xrightarrow{r} & \mathcal{O}_V(\Lambda^p T^{*\prime} M|_V) & \to 0 \\ & \| & & \| & & \| & \\ & \Omega_M^p(-V) & & \Omega_M^p & & \Omega_M^p|_V & \end{array}$$